STIC Search Report
Biotech-Chem Library

STIC Database Tracking Number: 117636

TO: Ralph J Gitomer **Location: 3d65 / 3e71** **Saturday, March 27, 2004** **Art Unit: 1651** **Phone: 272-0916** **Serial Number: 09 / 924797**	**From: Jan Delaval** **Location: Biotech-Chem Library** **Rem 1A51** **Phone: 272-2504** **jan.delaval@uspto.gov**

Search Notes

U.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

JAN

SEARCH REQUEST FORM 117636

Requestor's Name: R Gitomer Serial Number: 09/924,797

Date: 3/24/04 Phone: 20916 Art Unit: 3654

3671

Search Topic:

Please write a detailed statement of search topic. Describe specifically as possible the subject matter to be searched. Define any terms that may have a special meaning. Give examples or relevant citations, authors keywords, etc., if known. For sequences, please attach a copy of the sequence. You may include a copy of the broadest and/or most relevant claim(s).

JAN

1-10

STAFF USE ONLY

Date completed: 3/27/04

Searcher: mr

Terminal time:

Elapsed time: 15-25

CPU time:

Total time:

Number of Searches:

Number of Databases:

Search Site

- STIC
- CM-1
- Pre-S

Type of Search

- N.A. Sequence
- A.A. Sequence
- Structure
- Bibliographic

Vendors

- IG Suite
- STN
- Dialog
- APS
- Geninfo
- SDC
- DARC/Questel
- Other

```
=> fil reg
FILE 'REGISTRY' ENTERED AT 13:51:24 ON 27 MAR 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
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provided by InfoChem.

STRUCTURE FILE UPDATES:   26 MAR 2004  HIGHEST RN 668260-95-5
DICTIONARY FILE UPDATES:  26 MAR 2004  HIGHEST RN 668260-95-5

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 6, 2004

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

Crossover limits have been increased.  See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

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L1                STR
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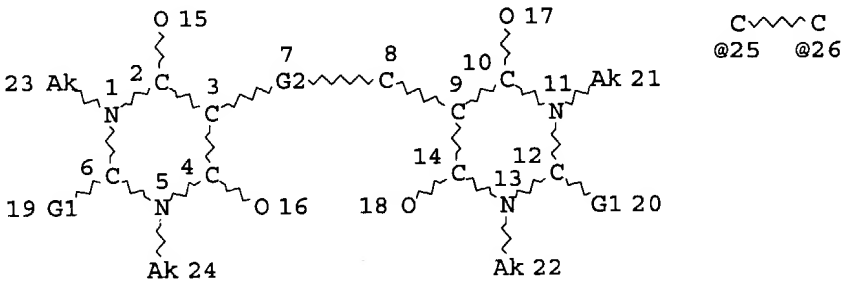


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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  26

STEREO ATTRIBUTES: NONE
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L4                STR
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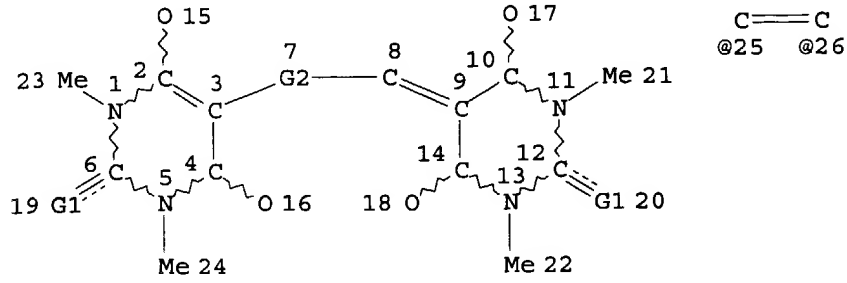

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REP G2=(1-2) 25-3 26-8
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 26

STEREO ATTRIBUTES: NONE
L6 8 SEA FILE=REGISTRY SUB=L3 SSS FUL L4

100.0% PROCESSED 18 ITERATIONS 8 ANSWERS
SEARCH TIME: 00.00.01

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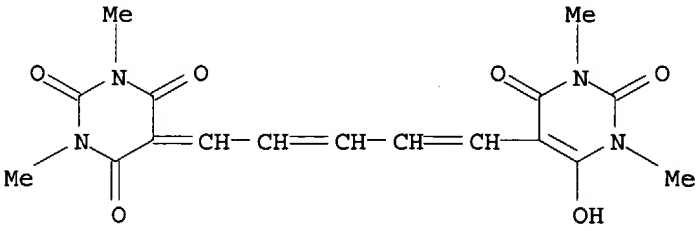
L6 ANSWER 1 OF 8 REGISTRY COPYRIGHT 2004 ACS on STN
RN 529512-56-9 REGISTRY
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dimethyl-5-[5-(1,2,3,4-tetrahydro-6-hydroxy-1,3-dimethyl-2,4-dioxo-5-pyrimidinyl)-2,4-pentadienylidene]-, compd. with N,N-dibutyl-1-butanamine (1:1) (9CI) (CA INDEX NAME)
MF C17 H18 N4 O6 . C12 H27 N
SR CA
LC STN Files: CA, CAPLUS

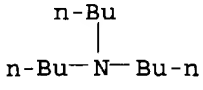
CM 1

CRN 497239-99-3
CMF C17 H18 N4 O6



CM 2

CRN 102-82-9
CMF C12 H27 N



1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

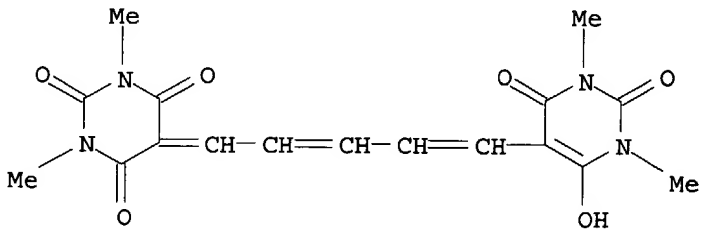
REFERENCE 1: 138:409441

L6 ANSWER 2 OF 8 REGISTRY COPYRIGHT 2004 ACS on STN

RN 529512-51-4 REGISTRY
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dimethyl-5-[5-(1,2,3,4-tetrahydro-6-hydroxy-1,3-dimethyl-2,4-dioxo-5-pyrimidinyl)-2,4-pentadienylidene]-, compd. with N,N-diethylethanamine (1:1) (9CI) (CA INDEX NAME)
MF C17 H18 N4 O6 . C6 H15 N
SR CA
LC STN Files: CA, CAPLUS

CM 1

CRN 497239-99-3
CMF C17 H18 N4 O6



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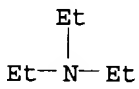
CRN 121-44-8
CMF C6 H15 N



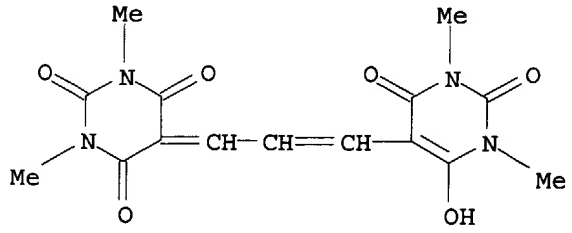
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 138:409441

L6 ANSWER 3 OF 8 REGISTRY COPYRIGHT 2004 ACS on STN
RN 529512-31-0 REGISTRY
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dimethyl-5-[3-(1,2,3,4-tetrahydro-6-hydroxy-1,3-dimethyl-2,4-dioxo-5-pyrimidinyl)-2-propenylidene]-, compd. with pyridine (1:1) (9CI) (CA INDEX NAME)
MF C15 H16 N4 O6 . C5 H5 N
SR CA
LC STN Files: CA, CAPLUS

CM 1

CRN 264278-60-6
CMF C15 H16 N4 O6



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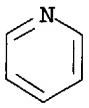
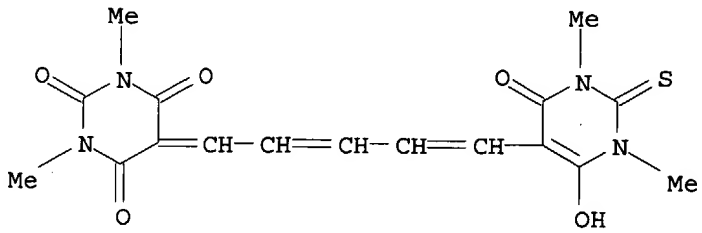
CRN 110-86-1
CMF C5 H5 N



1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 138:409441

L6 ANSWER 4 OF 8 REGISTRY COPYRIGHT 2004 ACS on STN
RN 497240-05-8 REGISTRY
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dimethyl-5-[5-(1,2,3,4-tetrahydro-6-hydroxy-1,3-dimethyl-4-oxo-2-thioxo-5-pyrimidinyl)-2,4-pentadienylidene]-(9CI) (CA INDEX NAME)
FS 3D CONCORD
MF C17 H18 N4 O5 S
SR CA
LC STN Files: CA, CAPLUS, USPATFULL



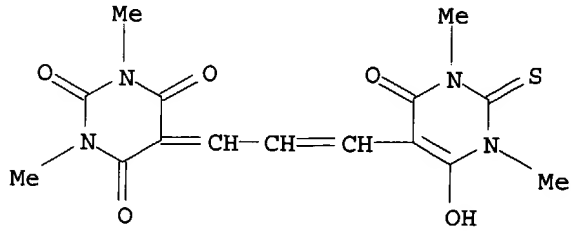
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 138:166188

L6 ANSWER 5 OF 8 REGISTRY COPYRIGHT 2004 ACS on STN
RN 497240-04-7 REGISTRY
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dimethyl-5-[3-(1,2,3,4-tetrahydro-6-hydroxy-1,3-dimethyl-4-oxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)

FS 3D CONCORD
MF C15 H16 N4 O5 S
SR CA
LC STN Files: CA, CAPLUS, USPATFULL

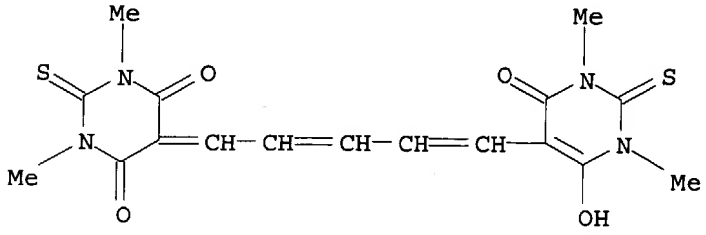


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 138:166188

L6 ANSWER 6 OF 8 REGISTRY COPYRIGHT 2004 ACS on STN
RN 497240-01-4 REGISTRY
CN 4,6(1H,5H)-Pyrimidinedione, dihydro-1,3-dimethyl-5-[5-(1,2,3,4-tetrahydro-6-hydroxy-1,3-dimethyl-4-oxo-2-thioxo-5-pyrimidinyl)-2,4-pentadienylidene]-2-thioxo- (9CI) (CA INDEX NAME)
FS 3D CONCORD
MF C17 H18 N4 O4 S2
SR CA
LC STN Files: CA, CAPLUS, USPATFULL

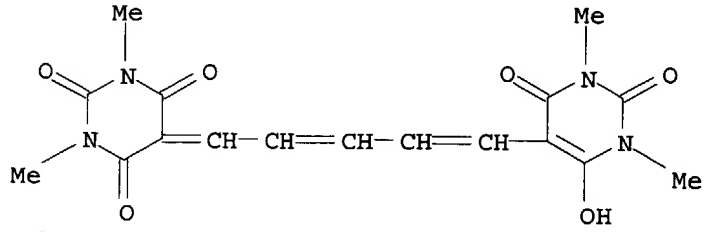


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 138:166188

L6 ANSWER 7 OF 8 REGISTRY COPYRIGHT 2004 ACS on STN
RN 497239-99-3 REGISTRY
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dimethyl-5-[5-(1,2,3,4-tetrahydro-6-hydroxy-1,3-dimethyl-2,4-dioxo-5-pyrimidinyl)-2,4-pentadienylidene]- (9CI) (CA INDEX NAME)
FS 3D CONCORD
MF C17 H18 N4 O6
CI COM
SR CA
LC STN Files: CA, CAPLUS, USPATFULL

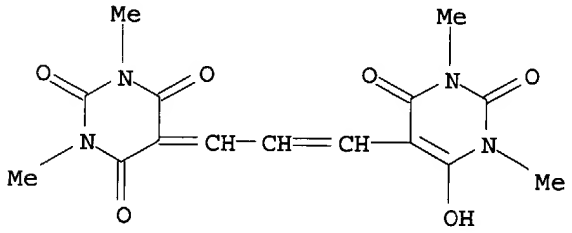


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 138:166188

L6 ANSWER 8 OF 8 REGISTRY COPYRIGHT 2004 ACS on STN
RN 264278-60-6 REGISTRY
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dimethyl-5-[3-(1,2,3,4-tetrahydro-6-hydroxy-1,3-dimethyl-2,4-dioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)
FS 3D CONCORD
MF C15 H16 N4 O6
CI COM
SR CA
LC STN Files: CA, CAPLUS, USPATFULL



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

2 REFERENCES IN FILE CA (1907 TO DATE)
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 138:166188

REFERENCE 2: 132:298905

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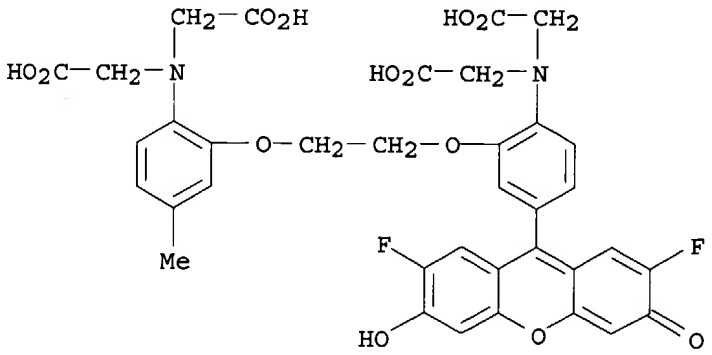
L13 ANSWER 1 OF 5 REGISTRY COPYRIGHT 2004 ACS on STN
RN 273221-59-3 REGISTRY
CN Glycine, N-[2-[2-[2-[bis(carboxymethyl)amino]-5-(2,7-difluoro-6-hydroxy-3-oxo-3H-xanthen-9-yl)phenoxy]ethoxy]-4-methylphenyl]-N-(carboxymethyl)- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN **Fluo 4**
FS 3D CONCORD

DR 253266-04-5
MF C36 H30 F2 N2 O13
CI COM
SR CA
LC STN Files: BIOSIS, CA, CAPLUS, TOXCENTER, USPATFULL



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

20 REFERENCES IN FILE CA (1907 TO DATE)
20 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 140:195600

REFERENCE 2: 140:96076

REFERENCE 3: 140:35888

REFERENCE 4: 139:64345

REFERENCE 5: 138:362622

REFERENCE 6: 138:283599

REFERENCE 7: 138:166188

REFERENCE 8: 138:121887

REFERENCE 9: 136:336195

REFERENCE 10: 136:321701

L13 ANSWER 2 OF 5 REGISTRY COPYRIGHT 2004 ACS on STN
RN 138067-55-7 REGISTRY
CN **Calcium green (9CI)** (CA INDEX NAME)
MF Unspecified
CI MAN
SR CA
LC STN Files: AGRICOLA, BIOBUSINESS, BIOSIS, CA, CANCERLIT, CAPLUS, MEDLINE, TOXCENTER, USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
38 REFERENCES IN FILE CA (1907 TO DATE)
7 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
38 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 139:303951

REFERENCE 2: 139:250928

REFERENCE 3: 139:98389

REFERENCE 4: 139:97443

REFERENCE 5: 138:351361

REFERENCE 6: 138:316921

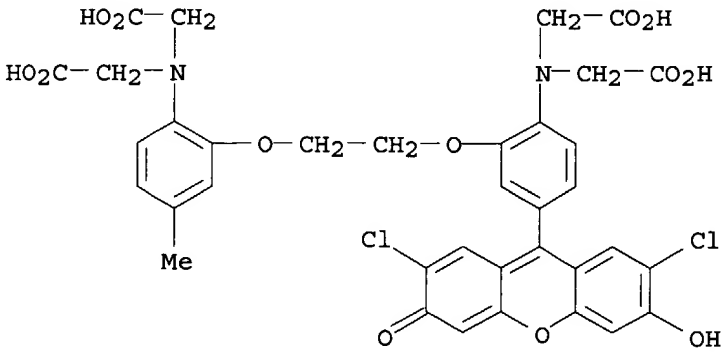
REFERENCE 7: 138:166188

REFERENCE 8: 137:333997

REFERENCE 9: 137:2587

REFERENCE 10: 136:259591

L13 ANSWER 3 OF 5 REGISTRY COPYRIGHT 2004 ACS on STN
RN 123632-39-3 REGISTRY
CN Glycine, N-[2-[2-[2-[bis(carboxymethyl)amino]-5-(2,7-dichloro-6-hydroxy-3-oxo-3H-xanthen-9-yl)phenoxy]ethoxy]-4-methylphenyl]-N-(carboxymethyl)- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN **Fluo 3**
FS 3D CONCORD
DR 121714-13-4, 122295-33-4, 129038-44-4
MF C36 H30 Cl2 N2 O13
CI COM
SR CA
LC STN Files: AGRICOLA, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CANCERLIT, CAPLUS, CEN, CHEMCATS, CSCHEM, EMBASE, MEDLINE, PROMT, TOXCENTER, USPAT2, USPATFULL



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

167 REFERENCES IN FILE CA (1907 TO DATE)
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167 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 140:177825

REFERENCE 2: 140:177753

REFERENCE 3: 140:177552

REFERENCE 4: 140:91447

REFERENCE 5: 140:91144

REFERENCE 6: 139:347692

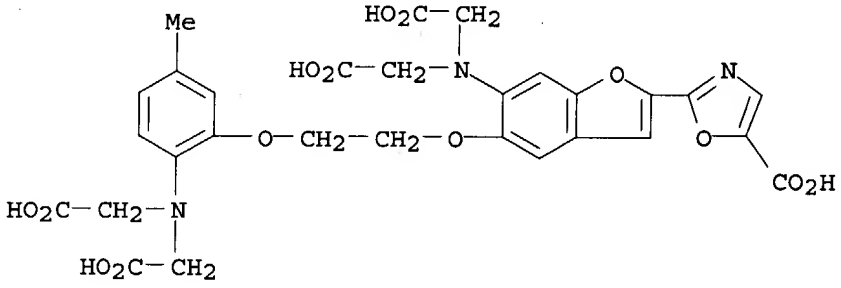
REFERENCE 7: 139:345222

REFERENCE 8: 139:320751

REFERENCE 9: 139:257572

REFERENCE 10: 139:176083

L13 ANSWER 4 OF 5 REGISTRY COPYRIGHT 2004 ACS on STN
RN 96314-98-6 REGISTRY
CN 5-Oxazolecarboxylic acid, 2-[6-[bis(carboxymethyl)amino]-5-[2-[2-[bis(carboxymethyl)amino]-5-methylphenoxy]ethoxy]-2-benzofuranyl]- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN **Fura 2**
FS 3D CONCORD
MF C29 H27 N3 O14
CI COM
LC STN Files: AGRICOLA, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CANCERLIT, CAPLUS, CEN, CHEMCATS, CIN, CSCHEM, EMBASE, MEDLINE, MRCK*, PROMT, TOXCENTER, USPAT2, USPATFULL
(*File contains numerically searchable property data)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

395 REFERENCES IN FILE CA (1907 TO DATE)
9 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
395 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 140:195614

REFERENCE 2: 140:90087

REFERENCE 3: 140:39951

REFERENCE 4: 139:359934

REFERENCE 5: 139:347692

REFERENCE 6: 139:347573

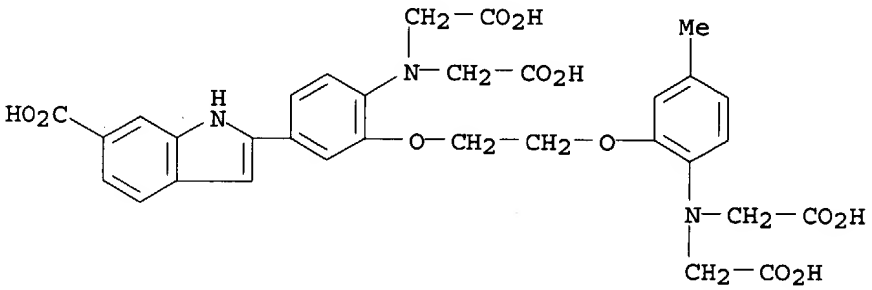
REFERENCE 7: 139:320751

REFERENCE 8: 139:306633

REFERENCE 9: 139:271353

REFERENCE 10: 139:258724

L13 ANSWER 5 OF 5 REGISTRY COPYRIGHT 2004 ACS on STN
RN 96314-96-4 REGISTRY
CN 1H-Indole-6-carboxylic acid, 2-[4-[bis(carboxymethyl)amino]-3-[2-[2-[bis(carboxymethyl)amino]-5-methylphenoxy]ethoxy]phenyl]- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN **Indo 1**
FS 3D CONCORD
MF C32 H31 N3 O12
CI COM
LC STN Files: AGRICOLA, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CANCERLIT, CAPLUS, CASREACT, CEN, CHEMCATS, CSCHEM, EMBASE, MEDLINE, MRCK*, PROMT, TOXCENTER, USPATFULL
(*File contains numerically searchable property data)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

180 REFERENCES IN FILE CA (1907 TO DATE)
10 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
180 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 140:178435

REFERENCE 2: 140:153667

REFERENCE 3: 140:141939

REFERENCE 4: 140:35887

REFERENCE 5: 139:347692

REFERENCE 6: 139:97474

REFERENCE 7: 138:398211

REFERENCE 8: 138:363834

REFERENCE 9: 138:250496

REFERENCE 10: 138:166188

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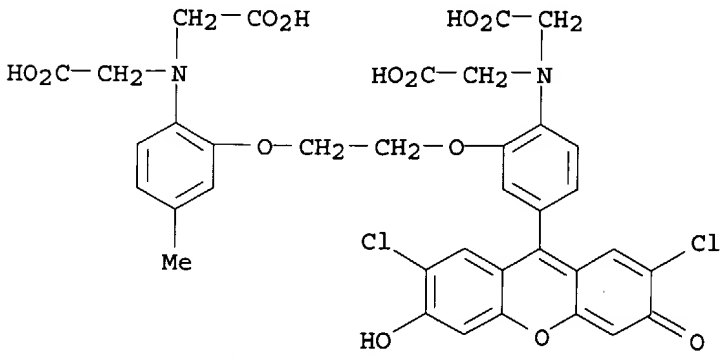
L14 ANSWER 1 OF 9 REGISTRY COPYRIGHT 2004 ACS on STN
RN 339221-91-9 REGISTRY
CN Glycine, N-[2-[2-[2-[bis(carboxymethyl)amino]-5-(2,7-dichloro-6-hydroxy-3-oxo-3H-xanthen-9-yl)phenoxy]ethoxy]-4-methylphenyl]-N-(carboxymethyl)-, pentaammonium salt (9CI) (CA INDEX NAME)
OTHER NAMES:
CN Fluo-3 pentaammonium salt
MF C36 H30 Cl2 N2 O13 . 5 H3 N
SR CA
LC STN Files: CA, CAPLUS, TOXCENTER, USPATFULL
CRN (123632-39-3)

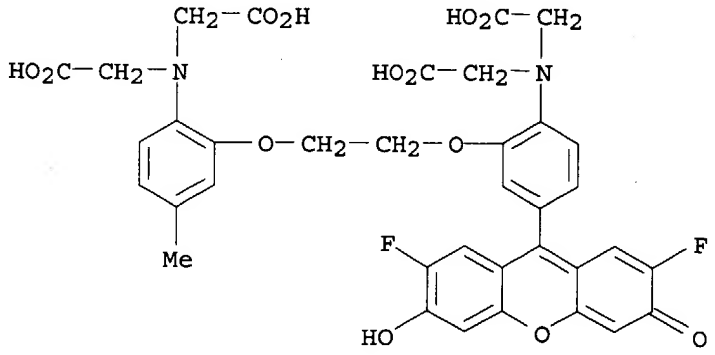


● 5 NH_3

1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 134:349308

L14 ANSWER 2 OF 9 REGISTRY COPYRIGHT 2004 ACS on STN
RN 273221-63-9 REGISTRY
CN Glycine, N-[2-[2-[2-[bis(carboxymethyl)amino]-5-(2,7-difluoro-6-hydroxy-3-oxo-3H-xanthen-9-yl)phenoxy]ethoxy]-4-methylphenyl]-N-(carboxymethyl)-, tetrapotassium salt (9CI) (CA INDEX NAME)
MF C36 H30 F2 N2 O13 . 4 K
SR CA
LC STN Files: CA, CAPLUS
CRN (273221-59-3)

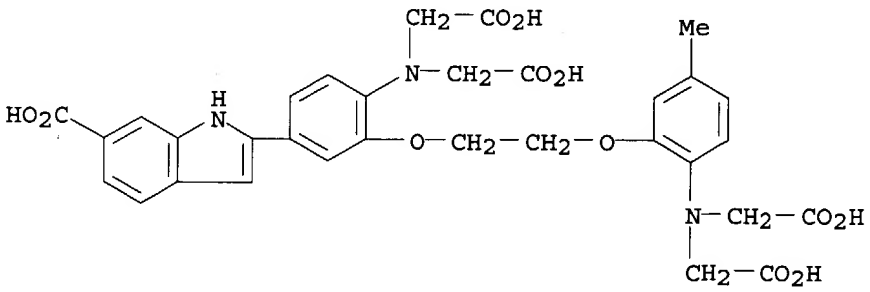


●4 K

1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 133:14235

L14 ANSWER 3 OF 9 REGISTRY COPYRIGHT 2004 ACS on STN
RN 132319-56-3 REGISTRY
CN 1H-Indole-6-carboxylic acid, 2-[4-[bis(carboxymethyl)amino]-3-[2-[2-[bis(carboxymethyl)amino]-5-methylphenoxy]ethoxy]phenyl]-, pentapotassium salt (9CI) (CA INDEX NAME)
MF C32 H31 N3 O12 . 5 K
SR CAS Client Services
LC STN Files: CA, CAPLUS, CHEMCATS, CSCHEM
CRN (96314-96-4)



●5 K

4 REFERENCES IN FILE CA (1907 TO DATE)
4 REFERENCES IN FILE CAPLUS (1907 TO DATE)

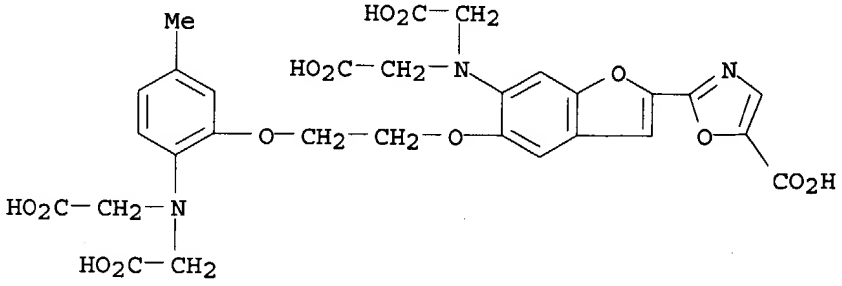
REFERENCE 1: 133:86357

REFERENCE 2: 120:186495

REFERENCE 3: 120:49312

REFERENCE 4: 115:251419

L14 ANSWER 4 OF 9 REGISTRY COPYRIGHT 2004 ACS on STN
RN 113694-64-7 REGISTRY
CN 5-Oxazolecarboxylic acid, 2-[6-[bis(carboxymethyl)amino]-5-[2-[2-[bis(carboxymethyl)amino]-5-methylphenoxy]ethoxy]-2-benzofuranyl]-, pentapotassium salt (9CI) (CA INDEX NAME)
MF C29 H27 N3 O14 . 5 K
SR CA
LC STN Files: CA, CAPLUS, CHEMCATS, CSCHEM, TOXCENTER
CRN (96314-98-6)



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3 REFERENCES IN FILE CA (1907 TO DATE)
3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 133:278270

REFERENCE 2: 126:101303

REFERENCE 3: 108:148693

L14 ANSWER 5 OF 9 REGISTRY COPYRIGHT 2004 ACS on STN
RN 105269-67-8 REGISTRY
CN 1H-Indole-6-carboxylic acid, 2-[4-[bis(carboxymethyl)amino]-3-[2-[2-[bis(carboxymethyl)amino]-5-methylphenoxy]ethoxy]phenyl]-, (acetyloxy)methyl ester (9CI) (CA INDEX NAME)
MF C32 H31 N3 O12 . x C3 H6 O3
SR CA
LC STN Files: CA, CAPLUS

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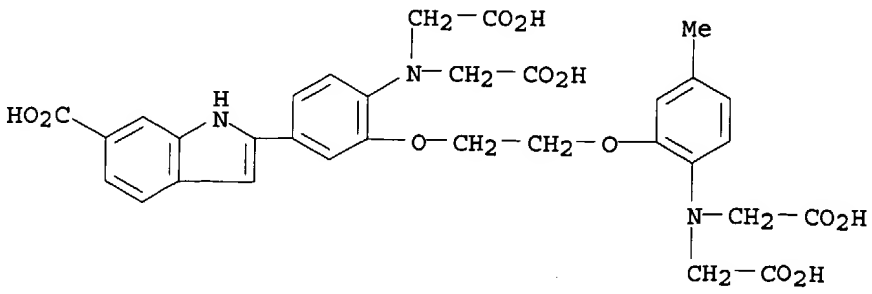
CRN 96314-96-4
CMF C32 H31 N3 O12



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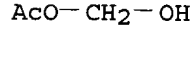
CRN 86011-33-8
CMF C3 H6 O3



2 REFERENCES IN FILE CA (1907 TO DATE)
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

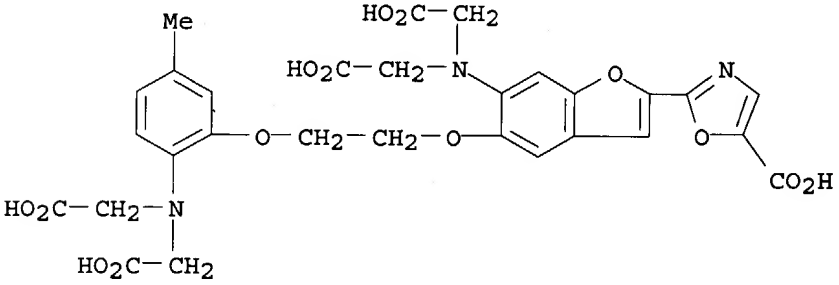
REFERENCE 1: 108:52262

REFERENCE 2: 105:205660

L14 ANSWER 6 OF 9 REGISTRY COPYRIGHT 2004 ACS on STN
RN 100215-37-0 REGISTRY
CN 5-Oxazolecarboxylic acid, 2-[6-[bis(carboxymethyl)amino]-5-[2-[2-[bis(carboxymethyl)amino]-5-methylphenoxy]ethoxy]-2-benzofuranyl]-, (acetyloxy)methyl ester (9CI) (CA INDEX NAME)
MF C29 H27 N3 O14 . x C3 H6 O3
SR CA
LC STN Files: CA, CAPLUS, TOXCENTER

CM 1

CRN 96314-98-6
CMF C29 H27 N3 O14



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CRN 86011-33-8
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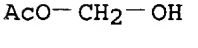


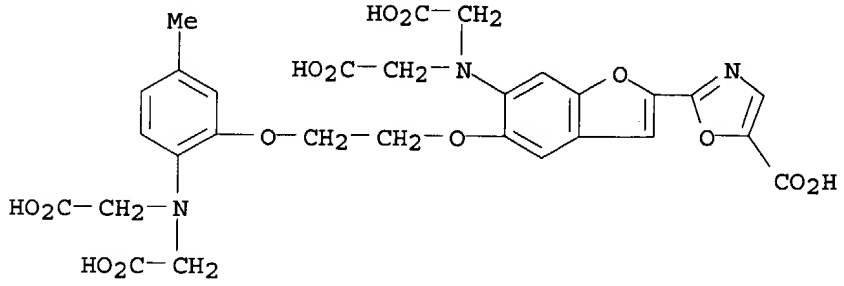
2 REFERENCES IN FILE CA (1907 TO DATE)
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 110:54084

REFERENCE 2: 104:65175

L14 ANSWER 7 OF 9 REGISTRY COPYRIGHT 2004 ACS on STN
RN 100108-74-5 REGISTRY

CN 5-Oxazolecarboxylic acid, 2-[6-[bis(carboxymethyl)amino]-5-[2-[2-[bis(carboxymethyl)amino]-5-methylphenoxy]ethoxy]-2-benzofuranyl]-, potassium salt (9CI) (CA INDEX NAME)
MF C29 H27 N3 O14 . x K
SR CA
LC STN Files: CA, CAPLUS
CRN (96314-98-6)



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1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 104:65175

L14 ANSWER 8 OF 9 REGISTRY COPYRIGHT 2004 ACS on STN
RN 96315-04-7 REGISTRY
CN 5-Oxazolecarboxylic acid, 2-[6-[bis(carboxymethyl)amino]-5-[2-[2-[bis(carboxymethyl)amino]-5-methylphenoxy]ethoxy]-2-benzofuranyl]-, calcium salt (9CI) (CA INDEX NAME)
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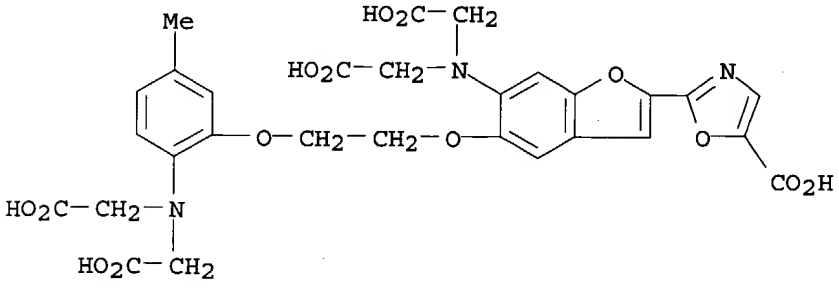
LC STN Files: CA, CAPLUS
CRN (96314-98-6)



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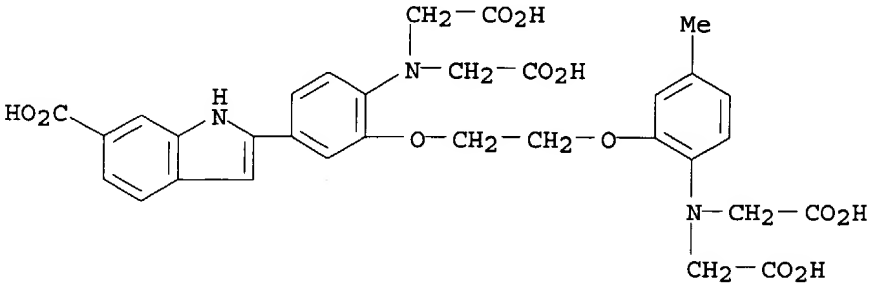
3 REFERENCES IN FILE CA (1907 TO DATE)
3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 126:285166

REFERENCE 2: 109:207738

REFERENCE 3: 102:200595

L14 ANSWER 9 OF 9 REGISTRY COPYRIGHT 2004 ACS on STN
RN 96315-02-5 REGISTRY
CN 1H-Indole-6-carboxylic acid, 2-[4-[bis(carboxymethyl)amino]-3-[2-[2-[bis(carboxymethyl)amino]-5-methylphenoxy]ethoxy]phenyl]-, calcium salt (9CI) (CA INDEX NAME)
MF C32 H31 N3 O12 . x Ca
LC STN Files: CA, CAPLUS
CRN (96314-96-4)



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3 REFERENCES IN FILE CA (1907 TO DATE)
3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 137:285865

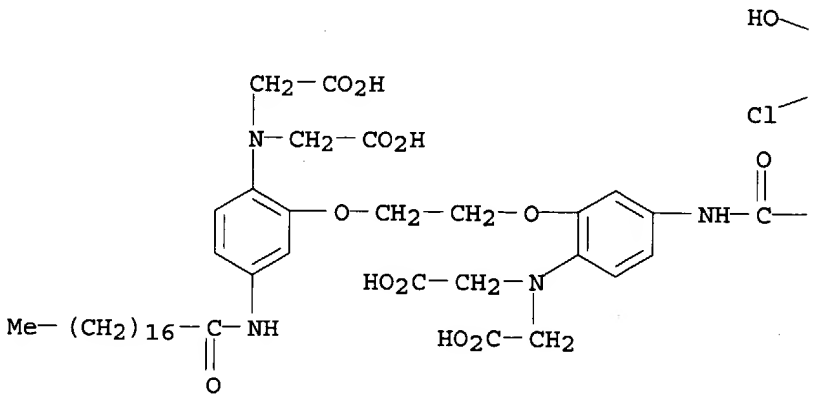
REFERENCE 2: 126:285166

REFERENCE 3: 102:200595

=> d l15 ide can

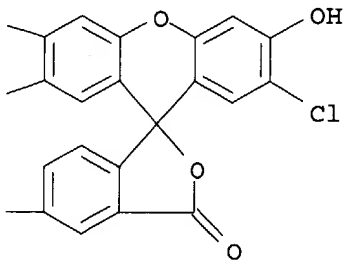
L15 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 216699-41-1 REGISTRY
CN Glycine, N-[2-[2-[2-[bis(carboxymethyl)amino]-5-[[(2',7'-dichloro-3',6'-dihydroxy-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl)carbonyl]amino]phenoxy]ethoxy]-4-[(1-oxooctadecyl)amino]phenyl]-N-(carboxymethyl)-, hexapotassium salt (9CI) (CA INDEX NAME)
MF C61 H68 Cl2 N4 O17 . 6 K
SR CA
CRN (201044-85-1)

PAGE 1-A



●6 K

PAGE 1-B



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=> d his

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               SET COST OFF

     FILE 'REGISTRY' ENTERED AT 13:34:37 ON 27 MAR 2004
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L2              5 S L1 CSS SAM
L3            114 S L1 CSS FUL
L4                STR L1
L5              0 S L4 SAM SUB=L3
L6              8 S L4 FUL SUB=L3
L7            106 S L3 NOT L6
                  E INDO/CN
L8              1 S E4
                  E CALCIUM GREEN/CN
L9              1 S E3
L10             6 S E4,E6-E11
                  E FURA/CN
L11             1 S E5
                  E FLUO/CN
L12             2 S E6,E10
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L13           5 S L8,L9,L11,L12
                SEL RN
L14           9 S E1-E5/CRN
                SEL RN L10
L15           1 S E6-E11/CRN

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L16           3 S L6
L17         690 S L13,L14
L18          55 S L10,L15
L19       10473 S INDO 1 OR FURA 2 OR FLUO()(3 OR 4) OR (CA OR CALCIUM)()GREEN
L20           1 S L16 AND L17-L19
L21           3 S L16,L20
L22         148 S L7
L23           6 S L22 AND L17-L19
L24           1 S L16 AND MEMBRANE POTENTIAL
L25           5 S L23 AND MEMBRANE POTENTIAL
L26          60 S L22 AND MEMBRANE POTENTIAL
L27           8 S L21,L23,L24,L25
                E KLAUBERT D/AU
L28          66 S E4-E8
                E DIWU Z/AU
L29          77 S E3-E6
                E YI G/AU
L30          52 S E3-E10
                E YI GUO/AU
L31          18 S E14
                E KIRK M/AU
L32         400 S E3-E13,E37-E41
                E MOL DEV/PA,CS
L33          49 S E5-E21
                E MOLEC DEV/PA,CS
                E MOLECUL DEV/PA,CS
                E MOLECULAR DEV/PA,CS
L34          82 S E13-E45
L35           1 S L16 AND L28-L34
L36           1 S L22 AND L28-L34
L37           8 S L27,L35,L36
L38           1 S US20030087332/PN OR WO2002-US25046/PRN,AP
L39           8 S L37,L38
                E MEMBRANE POTENTIAL/CT
L40        4905 S E3-E5
                E E3+ALL
L41        8836 S E8,E7+NT
                E E14+ALL
L42      169699 S E1+NT
                E E30+ALL
L43        2883 S E3,E2+NT
                E E10+ALL
                E E31+ALL
L44        1084 S E2+NT
L45           1 S L16 AND L40-L44
L46          37 S L22 AND L40-L44
L47           8 S L39,L45
L48          56 S L46,L26 NOT L47
L49           0 S L48 AND L17-L19
L50          53 S L48 AND (PD<=20020807 OR PRD<=20020807 OR AD<=20020807)
L51          38 S L50 AND (BIOCHEM?(L)METHOD?)/SC,SX
L52          15 S L50 NOT L51
L53          53 S L51,L52

     FILE 'REGISTRY' ENTERED AT 13:51:24 ON 27 MAR 2004
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=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 13:52:27 ON 27 MAR 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)
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FILE COVERS 1907 - 27 Mar 2004  VOL 140 ISS 14
FILE LAST UPDATED: 26 Mar 2004  (20040326/ED)

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.


=> d l47 all hitstr tot

L47  ANSWER 1 OF 8  HCAPLUS  COPYRIGHT 2004 ACS on STN
AN   2003:397108  HCAPLUS
DN   138:409441
ED   Entered STN:  23 May 2003
TI   Compositions comprising at least one oxonol dye and at least one metal
     complex
IN   Schmidhalter, Beat; Adam, Jean-Marie; Feiler, Leonhard; Lehmann, Urs; De
     Keyzer, Gerardus; Yousaf, Taher
PA   Ciba Specialty Chemicals Holding Inc., Switz.
SO   PCT Int. Appl., 70 pp.
     CODEN: PIXXD2
DT   Patent
LA   English
IC   ICM  G11B007-24
     ICS  C09B067-22; C09B069-04
CC   74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other
     Reprographic Processes)
FAN.CNT 1
     PATENT NO.        KIND  DATE           APPLICATION NO.  DATE
     ---------------   ----  --------       ---------------  --------
PI   WO 2003042989      A1   20030522       WO 2002-EP12307  20021105
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             CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
             GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
             LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
             PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,
             UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD,
             RU, TJ, TM
         RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG,
             CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
             PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
             NE, SN, TD, TG
PRAI EP 2001-811092    A    20011113
     EP 2001-811226    A    20011213
OS   MARPAT 138:409441
GI
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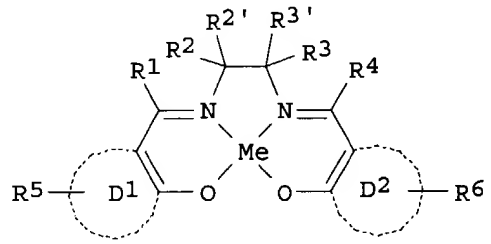

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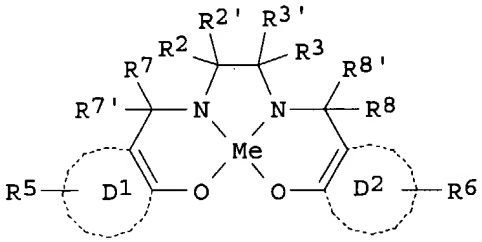

II

AB The present invention relates to compns. comprising at least one oxonol dye and at least one metal complex of formula I and II (Me = transition metal; D1,2 =carbocyclic or heterocyclic ring system; R5,6 = halogen, amino, alkylamino, dialkylamino, nitro, cyano, hydroxy, etc.; R1-4 = H, alkyl radical, aryl radical, aralkyl radical; R2,3, R2', R3' = H, cyano, alkyl radical, alkoxy radical, aryl radical, aralkyl radical, ester, carboxamide, sulfamide, etc.; R7,8, R7', R8' = H, alkyl radical, aryl radical, aralkyl radical, etc.). The present invention relates to recording media comprising the compns. and to use of the compns. in the production of optical recording media, color filters and printing inks. Use of the metal complexes of the invention results, surprisingly, in a comparatively weak tendency of the oxonol dyes to aggregate in the solid state so that the absorption curve remains advantageously narrow even in the solid state, as a result of which recording media having high reflectivity as well as high sensitivity and good playback characteristics in the desired spectral range are made available.

ST optical recording oxonol dye metal complex

IT Amines, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(C12-14-tert-alkyl; preparation of compns. comprising oxonol dye and metal complex for optical recording)

IT Optical recording materials
(compns. comprising at least one oxonol dye and at least one metal complex)

IT Dyes
Optical filters
(compns. comprising oxonol dye and metal complex for optical recording)

IT Inks
(printing; compns. comprising oxonol dye and metal complex for optical recording)

IT 104583-35-9P 463952-74-1P 529512-23-0P 529512-24-1P 529512-25-2P
529512-26-3P 529512-27-4P 529512-28-5P **529512-31-0P**
529512-32-1P 529512-33-2P 529512-35-4P 529512-38-7P 529512-42-3P
529512-43-4P 529512-45-6P 529512-46-7P 529512-48-9P 529512-50-3P
529512-51-4P 529512-53-6P 529512-57-0P 529512-64-9P
529512-66-1P 529512-68-3P 529512-69-4P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(compns. comprising oxonol dye and metal complex for optical recording)
IT 14167-15-8P 15319-27-4P 36433-88-2P 36820-28-7P 107478-81-9P
107478-83-1P 126725-56-2P 171866-24-3P 176763-63-6P 259679-01-1P
529512-36-5P 529512-40-1P 529512-41-2P 529512-55-8P
529512-56-9P 529512-61-6P 529512-63-8P 529512-70-7P
529512-72-9P 529512-73-0P 530085-02-0P 530085-04-2P 530085-06-4P
530085-07-5P 530085-08-6P 530085-09-7P 530085-10-0P 530085-11-1P
530085-12-2P 530085-13-3P 530086-54-5P 530087-31-1P 530087-32-2P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(compns. comprising oxonol dye and metal complex for optical recording)
IT 529512-22-9P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of compns. comprising oxonol dye and metal complex for optical recording)
IT 110-86-1, Pyridine, reactions 529512-29-6 529512-30-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of compns. comprising oxonol dye and metal complex for optical recording)
RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Ciba Geigy Ag; WO 9828737 A 1998 HCAPLUS
(2) Fuji Photo Film Co Ltd; EP 0833314 A 1998 HCAPLUS
(3) Fuji Photo Film Co Ltd; EP 0962923 A 1999 HCAPLUS
(4) Fuji Photo Film Co Ltd; JP 2000258618 A 2000 HCAPLUS
(5) Reinert, G; US 4655783 A 1987 HCAPLUS
(6) Ricoh Kk; JP 11110815 A 1999 HCAPLUS
(7) Tdk Corp; JP 60044390 A 1985 HCAPLUS
(8) Tdk Corp; EP 0458257 A 1991 HCAPLUS
(9) Toyo Ink Mfg Co Ltd; JP 09164767 A 1997 HCAPLUS
(10) Univ California; WO 0142211 A 2001 HCAPLUS
IT **529512-31-0P 529512-51-4P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(compns. comprising oxonol dye and metal complex for optical recording)
RN 529512-31-0 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dimethyl-5-[3-(1,2,3,4-tetrahydro-6-hydroxy-1,3-dimethyl-2,4-dioxo-5-pyrimidinyl)-2-propenylidene]-, compd. with pyridine (1:1) (9CI) (CA INDEX NAME)

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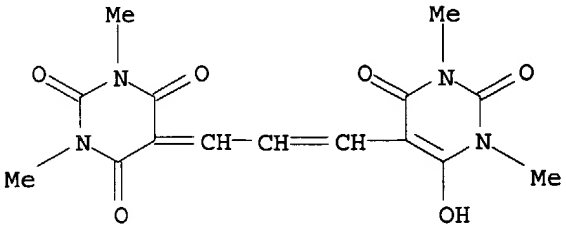
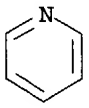
CRN 264278-60-6
CMF C15 H16 N4 O6



CM 2

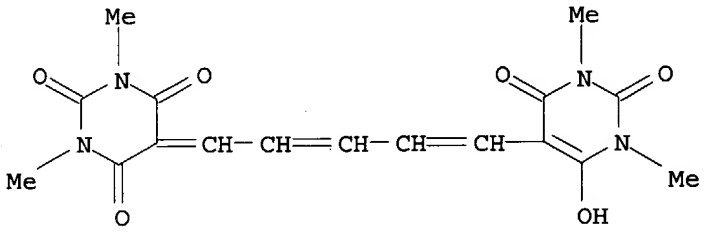
CRN 110-86-1
CMF C5 H5 N



RN 529512-51-4 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dimethyl-5-[5-(1,2,3,4-tetrahydro-6-hydroxy-1,3-dimethyl-2,4-dioxo-5-pyrimidinyl)-2,4-pentadienylidene]-, compd. with N,N-diethylethanamine (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 497239-99-3
CMF C17 H18 N4 O6



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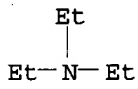
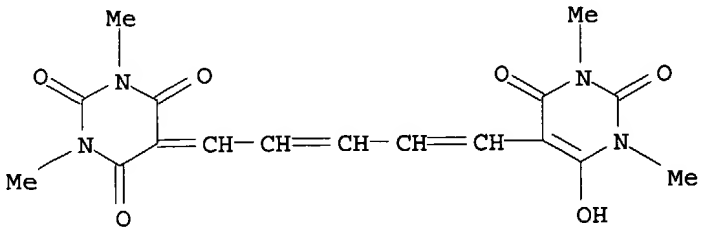
CMF C6 H15 N



IT **529512-56-9P**
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(compns. comprising oxonol dye and metal complex for optical recording)
RN 529512-56-9 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dimethyl-5-[5-(1,2,3,4-tetrahydro-6-hydroxy-1,3-dimethyl-2,4-dioxo-5-pyrimidinyl)-2,4-pentadienylidene]-, compd. with N,N-dibutyl-1-butanamine (1:1) (9CI) (CA INDEX NAME)

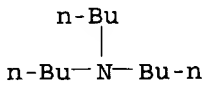
CM 1

CRN 497239-99-3
CMF C17 H18 N4 O6



CM 2

CRN 102-82-9
CMF C12 H27 N



L47 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:158057 HCAPLUS
DN 139:210227
ED Entered STN: 03 Mar 2003
TI Simultaneous measurement of [Ca2+]i and **membrane potential** under mechanical or biochemical stimulation
AU Sano, Minoru; Imura, Katsuaki; Ushida, Takashi; Tateishi, Tetsuya
CS Department of Mechanical Engineering, Graduate School of Engineering, The University of Tokyo, Bunkyo-ku, Tokyo, 113-8655, Japan
SO JSME International Journal, Series C: Mechanical Systems, Machine Elements and Manufacturing (2002), 45(4), 889-896
CODEN: JCDMEY; ISSN: 1344-7653
PB Japan Society of Mechanical Engineers
DT Journal
LA English
CC 9-5 (Biochemical Methods)
Section cross-reference(s): 6
AB In human umbilical endothelial cells (HUVEC), mech. stress is known to induce transients of [Ca2+]i that lead to the regulation of vascular functions in vivo. The transmembranous influx of Ca2+ is thought to be mediated by voltage-dependent ion channels or stretch-activated ion channels. In order to elucidate the correlation of [Ca2+]i and **membrane potential** under mech. stress, the influences of mech. or biochem. stimulation on endothelial cells stained with both **fura-2** and DiBAC4 (3) were studied in vitro, by constructing an imaging system that could capture four kinds of fluorescence images simultaneously at real-time. In the application of thrombin, [Ca2+]i transients were accompanied with preceding depolarization, while mech. stress that were loaded on a single cell with a micropipette did not evoke dramatic changes, of **membrane potential.** These results indicate that the signaling pathway initiated by mech. stress could be independent of electrochem. activation, and different from that by biochem. stimulation in HUVEC.
ST calcium signaling fluorescence imaging **fura 2** DiBAC; mech stress calcium signaling **membrane potential** thrombin
IT **Membrane potential**
(biol.; simultaneous measurement of [Ca2+]i and **membrane potential** under mech. or biochem. stimulation)

IT Umbilical cord
(endothelium; simultaneous measurement of [Ca2+]i and **membrane potential** under mech. or biochem. stimulation)
IT Fluorescence
(real-time imaging; simultaneous measurement of [Ca2+]i and **membrane potential** under mech. or biochem. stimulation)
IT Human
Imaging
Signal transduction, biological
Stress, mechanical
(simultaneous measurement of [Ca2+]i and **membrane potential** under mech. or biochem. stimulation)
IT **70363-83-6**, Bis-(1,3-dibutylbarbituric acid) trimethine oxonol
96314-98-6, **Fura-2**
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(simultaneous measurement of [Ca2+]i and **membrane potential** under mech. or biochem. stimulation)
IT 14127-61-8, Calcium ion, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(simultaneous measurement of [Ca2+]i and **membrane potential** under mech. or biochem. stimulation)
IT 9002-04-4, Thrombin
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(simultaneous measurement of [Ca2+]i and **membrane potential** under mech. or biochem. stimulation)
RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
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(2) Coughlin, S; Nature 2000, V407, P258 HCAPLUS
(3) Dewey, C; J Biomech Eng 1981, V103, P177
(4) Diamond, S; Arterioscler Thromb 1994, V14, P2000 HCAPLUS
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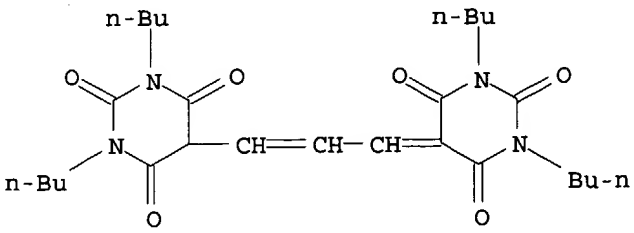
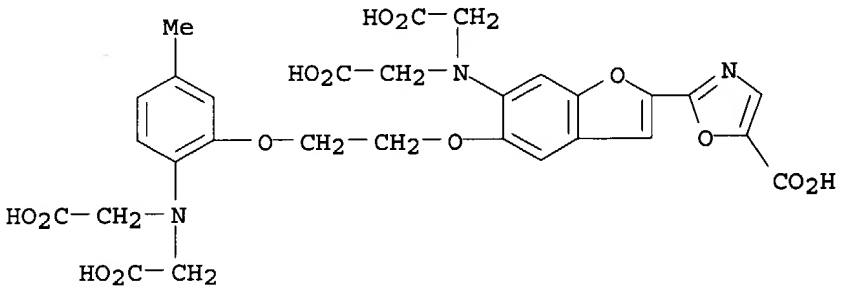
(18) Wang, G; Microvasc Res 2002, V63, P209 HCAPLUS
(19) White, C; Circulation 2001, V103, P2508 MEDLINE
(20) White, G; J Cell Biol 1986, V103, P63 MEDLINE
(21) Yamada, A; Jpn J Pharmacol 2001, V86, P342 HCAPLUS
(22) Yamamoto, K; Circ Res 2000, V87, P385 HCAPLUS
IT **70363-83-6**, Bis-(1,3-dibutylbarbituric acid) trimethine oxonol
96314-98-6, **Fura-2**
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(simultaneous measurement of [Ca2+]i and **membrane potential** under mech. or biochem. stimulation)
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



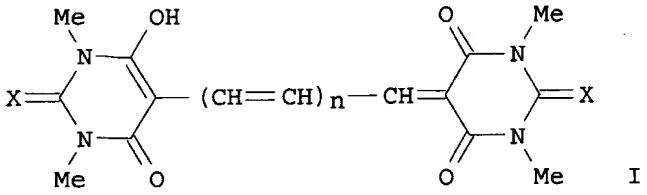
RN 96314-98-6 HCAPLUS
CN 5-Oxazolecarboxylic acid, 2-[6-[bis(carboxymethyl)amino]-5-[2-[2-[bis(carboxymethyl)amino]-5-methylphenoxy]ethoxy]-2-benzofuranyl]- (9CI) (CA INDEX NAME)



L47 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:133563 HCAPLUS
DN 138:166188
ED Entered STN: 21 Feb 2003
TI Improved method for measuring **membrane potential**
IN **Klaubert, Dieter; Diwu, Zhenjun; Yi, Guoliang** ; Kirk, Martin
PA **Molecular Devices Corporation, USA**
SO PCT Int. Appl., 18 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM G01N
CC 9-1 (Biochemical Methods)
Section cross-reference(s): 48
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003014701	A2	20030220	WO 2002-US25046	20020807 <--
	WO 2003014701	A3	20031113		
	W: CA, US				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
	US 2003087332	A1	20030508	US 2001-924797	20010808 <--
PRAI	US 2001-924797	A1	20010808		

OS MARPAT 138:166188
GI



I

AB The invention encompasses an improved method for measuring **membrane potential** using compds. of the formula I, where x is O or S and n is 1 or 2 as potentiometric probes. These probes may be used in combination with other fluorescent indicators such as **Indo -1**, **Fura-2**, and **Fluo-3**, such probes may be used in microplate reading devices such as a fluorescent imaging plate reader, flow cytometers, and fluorometers. Such probes are used to measure **membrane potential** in live cells.

ST biol **membrane potential** fluorescent imaging

IT Cytometry
(apparatus, fluorescence flow; improved method for measuring **membrane potential**)

IT **Membrane potential**
(**biol.**; improved method for measuring **membrane potential**)

IT Measuring apparatus
(cytometers, fluorescence flow; improved method for measuring **membrane potential**)

IT Microscopes
(fluorescence; improved method for measuring **membrane potential**)

IT Fluorescent indicators
(improved method for measuring **membrane potential**)

IT 121-44-8, Triethylamine, reactions 3158-63-2, 1,3-Dimethyl-2-thiobarbituric acid 123071-42-1, Malonaldehyde bis(phenylimine) monohydrochloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(improved method for measuring **membrane potential**)

IT 75-05-8, Acetonitrile, reactions
RL: RGT (Reagent); RACT (Reactant or reagent)
(improved method for measuring **membrane potential**)

IT **3316-73-2 264278-60-6 497239-99-3 497240-01-4 497240-02-5 497240-03-6 497240-04-7 497240-05-8**
RL: TEM (Technical or engineered material use); USES (Uses)
(improved method for measuring **membrane potential**)

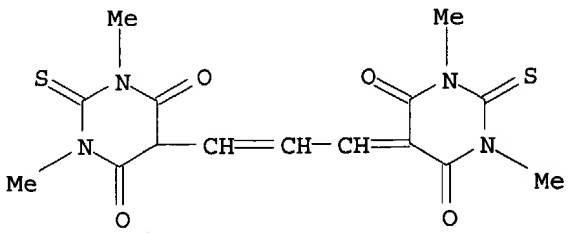
IT **96314-96-4**, **Indo-1 96314-98-6**, **Fura-2 123632-39-3**, **Fluo-3 138067-55-7**, **Calcium Green 273221-59-3**, **Fluo-4**
RL: TEM (Technical or engineered material use); USES (Uses)
(second fluorescent indicator; improved method for measuring **membrane potential**)

IT **3316-73-2 264278-60-6 497239-99-3 497240-01-4 497240-02-5 497240-03-6 497240-04-7 497240-05-8**
RL: TEM (Technical or engineered material use); USES (Uses)
(improved method for measuring **membrane potential**)

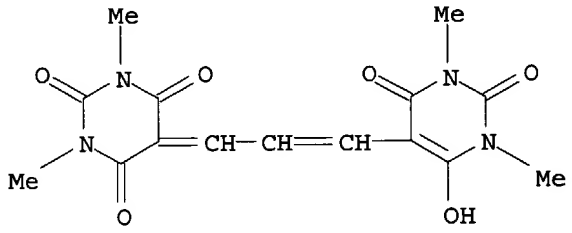
RN 3316-73-2 HCAPLUS

CN 4,6(1H,5H)-Pyrimidinedione, dihydro-1,3-dimethyl-5-[3-(tetrahydro-1,3-dimethyl-4,6-dioxo-2-thioxo-5(2H)-pyrimidinylidene)-1-propenyl]-2-thioxo-

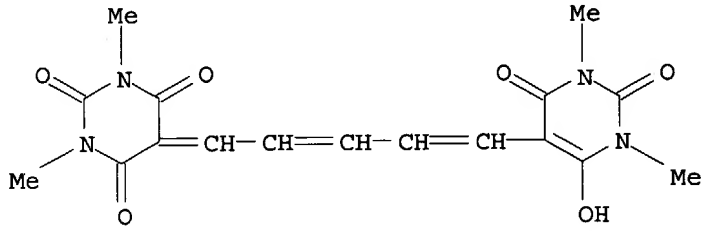
(9CI) (CA INDEX NAME)



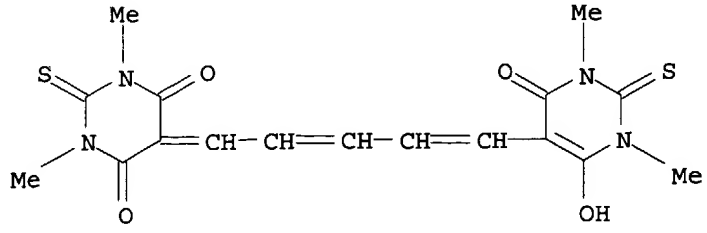
RN 264278-60-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dimethyl-5-[3-(1,2,3,4-tetrahydro-6-hydroxy-1,3-dimethyl-2,4-dioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



RN 497239-99-3 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dimethyl-5-[5-(1,2,3,4-tetrahydro-6-hydroxy-1,3-dimethyl-2,4-dioxo-5-pyrimidinyl)-2,4-pentadienylidene]- (9CI) (CA INDEX NAME)

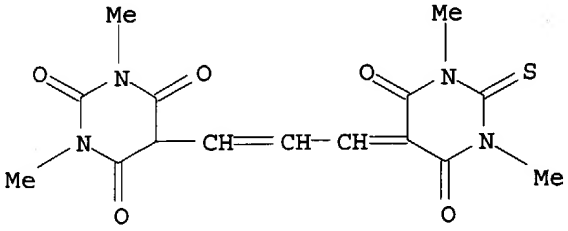


RN 497240-01-4 HCAPLUS
CN 4,6(1H,5H)-Pyrimidinedione, dihydro-1,3-dimethyl-5-[5-(1,2,3,4-tetrahydro-6-hydroxy-1,3-dimethyl-4-oxo-2-thioxo-5-pyrimidinyl)-2,4-pentadienylidene]-2-thioxo- (9CI) (CA INDEX NAME)

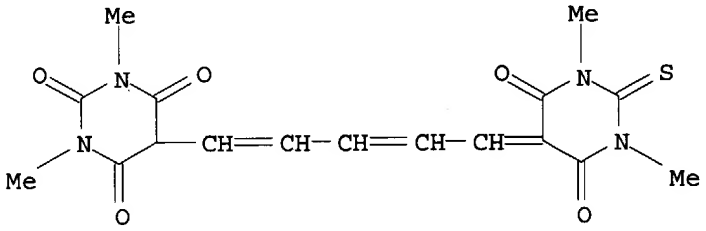


RN 497240-02-5 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dimethyl-5-[3-(tetrahydro-1,3-

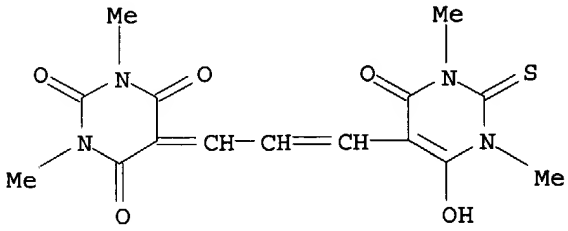
dimethyl-4,6-dioxo-2-thioxo-5(2H)-pyrimidinylidene)-1-propenyl]- (9CI) (CA INDEX NAME)



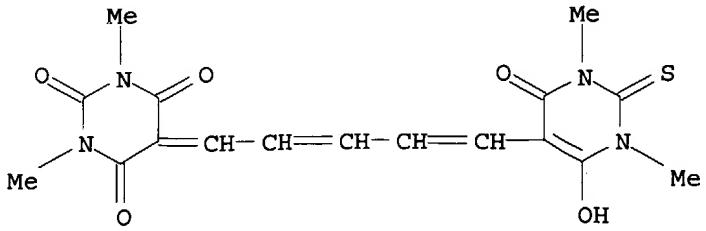
RN 497240-03-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dimethyl-5-[5-(tetrahydro-1,3-dimethyl-4,6-dioxo-2-thioxo-5(2H)-pyrimidinylidene)-1,3-pentadienyl]- (9CI) (CA INDEX NAME)



RN 497240-04-7 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dimethyl-5-[3-(1,2,3,4-tetrahydro-6-hydroxy-1,3-dimethyl-4-oxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



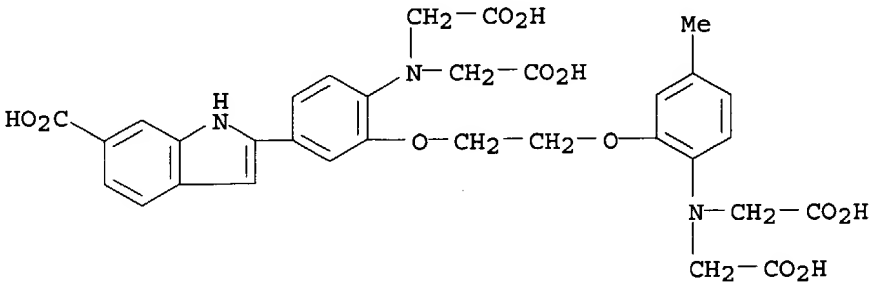
RN 497240-05-8 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dimethyl-5-[5-(1,2,3,4-tetrahydro-6-hydroxy-1,3-dimethyl-4-oxo-2-thioxo-5-pyrimidinyl)-2,4-pentadienylidene]- (9CI) (CA INDEX NAME)



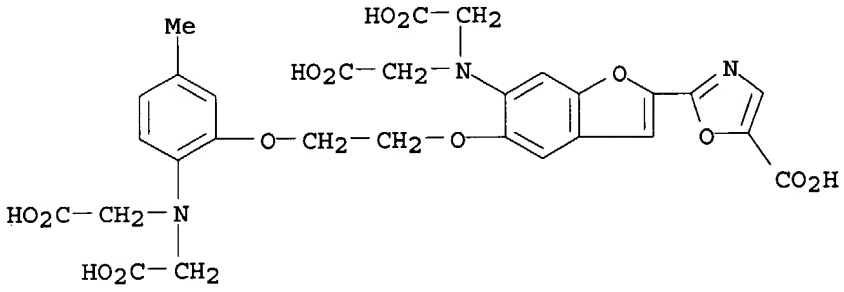
IT **96314-96-4, Indo-1 96314-98-6,**

Fura-2 123632-39-3, Fluo-3
138067-55-7, Calcium Green 273221-59-3
, Fluo-4
RL: TEM (Technical or engineered material use); USES (Uses)
(second fluorescent indicator; improved method for measuring **membrane potential**)

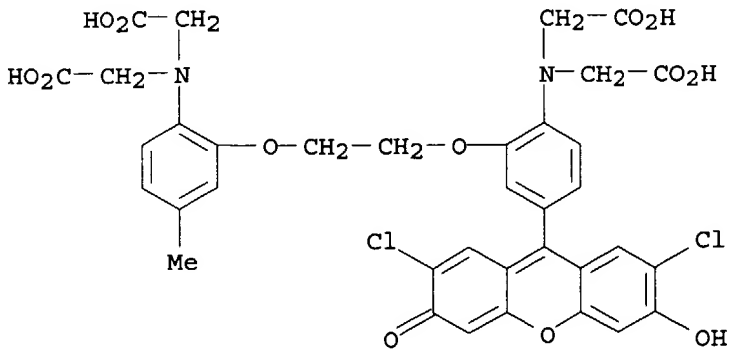
RN 96314-96-4 HCAPLUS
CN 1H-Indole-6-carboxylic acid, 2-[4-[bis(carboxymethyl)amino]-3-[2-[2-[bis(carboxymethyl)amino]-5-methylphenoxy]ethoxy]phenyl]- (9CI) (CA INDEX NAME)



RN 96314-98-6 HCAPLUS
CN 5-Oxazolecarboxylic acid, 2-[6-[bis(carboxymethyl)amino]-5-[2-[2-[bis(carboxymethyl)amino]-5-methylphenoxy]ethoxy]-2-benzofuranyl]- (9CI) (CA INDEX NAME)



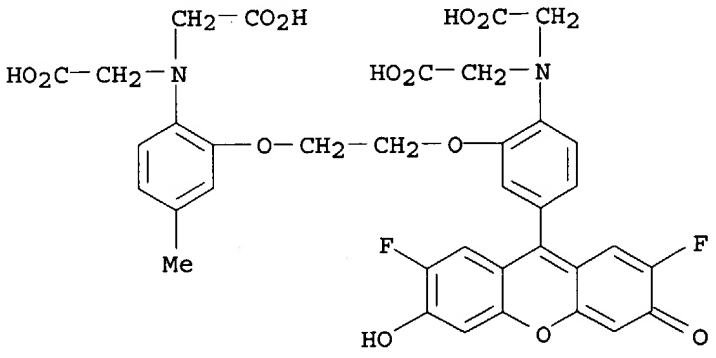
RN 123632-39-3 HCAPLUS
CN Glycine, N-[2-[2-[2-[bis(carboxymethyl)amino]-5-(2,7-dichloro-6-hydroxy-3-oxo-3H-xanthen-9-yl)phenoxy]ethoxy]-4-methylphenyl]-N-(carboxymethyl)- (9CI) (CA INDEX NAME)



RN 138067-55-7 HCAPLUS

CN Calcium green (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 273221-59-3 HCAPLUS
CN Glycine, N-[2-[2-[2-[bis(carboxymethyl)amino]-5-(2,7-difluoro-6-hydroxy-3-oxo-3H-xanthen-9-yl)phenoxy]ethoxy]-4-methylphenyl]-N-(carboxymethyl)- (9CI) (CA INDEX NAME)



L47 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:42372 HCAPLUS
DN 138:102021
ED Entered STN: 17 Jan 2003
TI cDNAs encoding human olfactory cyclic nucleotide gated (CNG) channel subunits for use in enhancing smell receptors
IN Zoller, Mark T.; Xu, Hong; Staszewski, Lena; Moyer, Bryan; Pronin, Alexy; Adler, Jon Elliott; Servant, Guy; Callamaras, Nicholas
PA Senomyx, Inc., USA
SO PCT Int. Appl., 97 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C12N
CC 3-3 (Biochemical Genetics)
Section cross-reference(s): 1, 13, 17
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003004611	A2	20030116	WO 2002-US21184	20020708
	WO 2003004611	A3	20040226		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2003228633	A1	20031211	US 2002-189507	20020708
PRAI	US 2001-303140P	P	20010706		
	US 2001-337154P	P	20011210		

AB The present invention relates to isolated nucleic acid sequences that encode human olfactory cyclic nucleotide gated (CNG) channel subunits, and the corresponding polypeptides. The invention further relates to the use of human CNG channels to profile, screen for, and identify compds. that

modulate the human olfactory CNG channel. More specifically, the invention relates to the expression of the human olfactory CNG channel in cells, preferably mammalian cells, and the use of these cells in high throughput cell-based assays to identify compds. that enhance or block human olfactory CNG function. Compds. that activate the olfactory CNG channel will enhance smell and can be used to make foods more palatable for individuals with attenuated olfactory function. Conversely, compds. that inhibit the olfactory CNG channel will inhibit smell and can be use to block malodors. Addnl., the invention relates to the use of cell-based olfactory CNG channel assays to identify modulators of G-protein coupled receptor (GPCRs) and other proteins that regulate cyclic nucleotide levels. Claimed sequence ID#4 is missing.

ST human sequence cDNA olfactory gland cyclic nucleotide gated channel; smell receptor CNG ion channel subunit drug screening

IT G protein-coupled receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(-mediated cyclic nucleotide activated ion transport; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Animal cell line
(3T3, olfactory CNG channel subunit synthesis in; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Animal cell line
(BHK, olfactory CNG channel subunit synthesis in; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Animal cell line
(CHO, olfactory CNG channel subunit synthesis in; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Animal cell line
(COS, olfactory CNG channel subunit synthesis in; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Animal cell line
(HEK, olfactory CNG channel subunit synthesis in; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Animal cell line
(HEK293T, olfactory CNG channel subunit synthesis in; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Animal cell line
(Hek 293, olfactory CNG channel subunit synthesis in; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Animal cell line
(MDCK, olfactory CNG channel subunit synthesis in; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Mouse
(OREG olfactory receptor -mediated cyclic nucleotide activated ion transport; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Olfactory receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(OREG, of mouse, -mediated cyclic nucleotide activated ion transport; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Plasmid vectors
(SAV1931, human olfactory CNG channel subunit OCNC1 cloned into; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Plasmid vectors
(SAV1976, human olfactory CNG channel subunit OCNC2 cloned into; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Plasmid vectors

(SAV2498, human olfactory CNG channel subunit β1b cloned into; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Animal cell line
(Swiss 3T3, olfactory CNG channel subunit synthesis in; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT **Membrane potential**
(biol., fluorescent dyes, for identifying modulators of olfactory CNG channel; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Cations
Human
Mammalia
(cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Nucleotides, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(cyclic, -activated ion transport; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT High throughput screening
(drug, for effectors of human olfactory CNG channel; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Physiology, animal
(electrophysiol, changes in whole cell or cell membrane to identify effectors of olfactory CNG channel; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Animal cell
Cell membrane
Eukaryota
(electrophysiol. changes detected for identifying effectors of olfactory CNG channel; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Plates
(fluorescent or voltage imaging reader, to monitor changes in fluorescence associated with screening for effectors of olfactory CNG channel; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Imaging
(fluorescent or voltage, for detection of olfactory CNG channel subunit effectors; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Microtiter plates
(for identifying modulators of olfactory CNG channel; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT cDNA sequences
(for olfactory CNG channel subunits of human; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT cDNA
RL: BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(for olfactory CNG channel subunits, of human; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Drug screening
(high throughput, for effectors of human olfactory CNG channel; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Electric potential
(imaging plate reader, to monitor changes in fluorescence associated with screening for effectors of olfactory CNG channel; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT Biological transport
(ion, monitoring cyclic nucleotide activated; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)
IT G proteins (guanine nucleotide-binding proteins)
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(isoproterenol as activator of; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)
IT Fluorescent dyes
(**membrane potential**, for identifying modulators of olfactory CNG channel; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)
IT Molecular cloning
(of human olfactory CNG channel subunits; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)
IT Ion channel
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(olfactory CNG channel, OCNC1, OCNC2 and β1b subunits, of human; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)
IT Nose
(olfactory gland; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)
IT Mutagenesis
(site-directed, of olfactory CNG channel; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)
IT Adrenoceptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(β2, -mediated cyclic nucleotide activated ion transport; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)
IT 7440-70-2, Calcium, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(-sensitive fluorescent dye for screening for olfactory CNG channel effectors; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)
IT 9012-42-4, Adenylyl cyclase
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(activator to elevate intracellular cAMP in drug screening assays; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)
IT 9054-75-5, Guanylyl cyclase
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(activator to elevate intracellular cGMP in drug screening assays; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)
IT 7683-59-2, Isoproterenol
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(as activator of G protein; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)
IT 66575-29-9, Forskolin
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(as activator of adenylyl cyclase; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)
IT 90134-00-2, Di-4-ANEPPS **123632-39-3**, **Fluo-3**
129423-53-6, SBFI-AM **155703-07-4**, DiSBAC4(3)
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(as **membrane potential** dyes, for identifying modulators of olfactory CNG channel; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)
IT 97-53-0, Eugenol
RL: BSU (Biological study, unclassified); BIOL (Biological study)

(as mouse olfactory receptor ligand; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT 60-92-4, CAMP
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(drug screening assays containing adenylyl cyclase activator to elevate intracellular; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT 7665-99-8, CGMP
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(drug screening assays containing guanylyl cyclase activator to elevate intracellular; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT 9040-59-9, 3',5'-Cyclic nucleotide phosphodiesterase
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(inhibitor to elevate cAMP or cGMP in drug screening assays; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

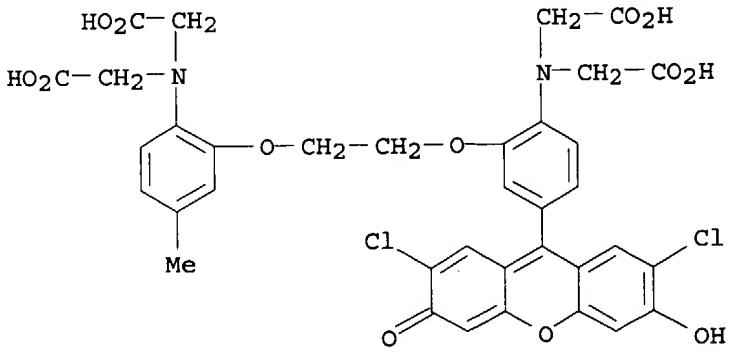
IT 7440-23-5, Sodium, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(monitoring transport of; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

IT 488154-30-9 488154-31-0 488154-32-1
RL: BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(nucleotide sequence; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

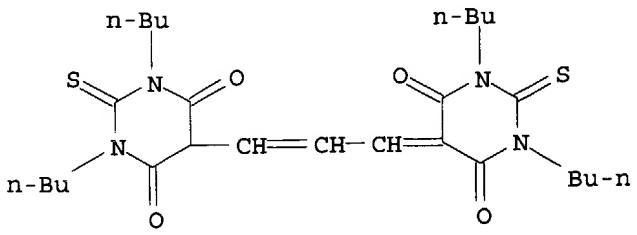
IT 488167-14-2
RL: PRP (Properties)
(unclaimed nucleotide sequence; cDNAs encoding human olfactory cyclic nucleotide gated (CNG) channel subunits for use in enhancing smell receptors)

IT **123632-39-3**, **Fluo-3 155703-07-4**, DiSBAC4(3)
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(as **membrane potential** dyes, for identifying modulators of olfactory CNG channel; cDNAs encoding human olfactory CNG channel subunits for use in enhancing smell receptors)

RN 123632-39-3 HCAPLUS
CN Glycine, N-[2-[2-[2-[bis(carboxymethyl)amino]-5-(2,7-dichloro-6-hydroxy-3-oxo-3H-xanthen-9-yl)phenoxy]ethoxy]-4-methylphenyl]-N-(carboxymethyl)- (9CI) (CA INDEX NAME)



RN 155703-07-4 HCAPLUS
CN 4,6(1H,5H)-Pyrimidinedione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]dihydro-2-thioxo- (9CI) (CA INDEX NAME)



L47 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:581981 HCAPLUS
DN 135:167971
ED Entered STN: 10 Aug 2001
TI Environmental detection reagent with fluorophores
IN Thomas, Nicholas; Cooper, Michael E.; Adie, Elaine
PA Amersham Pharmacia Biotech UK Limited, UK
SO PCT Int. Appl., 31 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C09B023-00
ICS C09B023-08; C09B057-00; G01N033-533
CC 41-11 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001057141	A1	20010809	WO 2001-GB402	20010201
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	EP 1252236	A1	20021030	EP 2001-902525	20010201
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2003522247	T2	20030722	JP 2001-557964	20010201
	US 2003211454	A1	20031113	US 2002-182994	20021016
PRAI	GB 2000-2261	A	20000202		
	GB 2000-31168	A	20001221		
	WO 2001-GB402	W	20010201		

AB An environmentally sensitive ratiometric reporter mol. is a compound of formula D1-L-D2 wherein D1 and D2 are detectable mols. (such as fluorophores) and D1 is a reference mol.; D2 is an environmentally sensitive mol.; and L is a linker group characterized in that there is no energy transfer between D1 and D2.
ST environmental sensitive fluorophore detection reagent
IT Dyes
(Cy type; environmental detection reagent with fluorophores)
IT Fluorescent substances
(environmental detection reagent with fluorophores)
IT **70363-83-6**
RL: TEM (Technical or engineered material use); USES (Uses)
(DiBAC4; environmental detection reagent with fluorophores)
IT **273221-59-3, Fluo 4**
RL: TEM (Technical or engineered material use); USES (Uses)

(**Fluo 4**; environmental detection reagent with fluorophores)

IT 353741-08-9, Mag-**Fluo 4**
RL: TEM (Technical or engineered material use); USES (Uses)
(Mag-**Fluo 4**; environmental detection reagent with fluorophores)

IT 195244-55-4
RL: TEM (Technical or engineered material use); USES (Uses)
(Sodium Green; environmental detection reagent with fluorophores)

IT 128625-52-5
RL: CAT (Catalyst use); USES (Uses)
(environmental detection reagent with fluorophores)

IT 353475-01-1P 353475-05-5P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(environmental detection reagent with fluorophores)

IT 353475-10-2P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(environmental detection reagent with fluorophores)

IT 6066-82-6, N-Hydroxysuccinimide 84100-84-5 123071-42-1, Malonaldehyde bis(phenylimine)monohydrochloride 132557-72-3 353475-13-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(environmental detection reagent with fluorophores)

IT 65-85-0, Benzoic acid, uses 93-97-0, Benzoic anhydride 1758-68-5, 1,2 Diaminoanthraquinone 73630-23-6, Quin2 **96314-98-6**, **Fura 2** 109628-27-5 119971-42-5, 6-Methoxy-N-(3-sulfopropyl)quinolinium **123632-39-3**, **Fluo-3** 138067-54-6, Calcium Crimson 170516-41-3, Magnesium Green 288374-37-8, Newport Green 353742-26-4, Phen Green PL
RL: TEM (Technical or engineered material use); USES (Uses)
(environmental detection reagent with fluorophores)

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE
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(2) Anon; PATENT ABSTRACTS OF JAPAN 1989, V013(324), PP-903
(3) Borror, A; US 3976493 A 1976 HCAPLUS
(4) Eastman Kodak Co; EP 0565074 A 1993 HCAPLUS
(5) Eastman Kodak Co; EP 0887700 A 1998 HCAPLUS
(6) Fuji Photo Film Co Ltd; JP 01091134 A 1989 HCAPLUS
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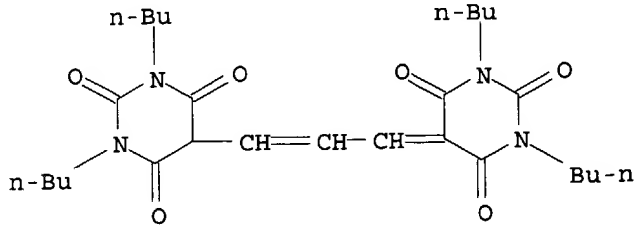
(8) Molecular Probes Inc; WO 9306482 A 1993 HCAPLUS
(9) Mujumdar, R; US 5268486 A 1993 HCAPLUS

IT **70363-83-6**
RL: TEM (Technical or engineered material use); USES (Uses)
(DiBAC4; environmental detection reagent with fluorophores)

RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)

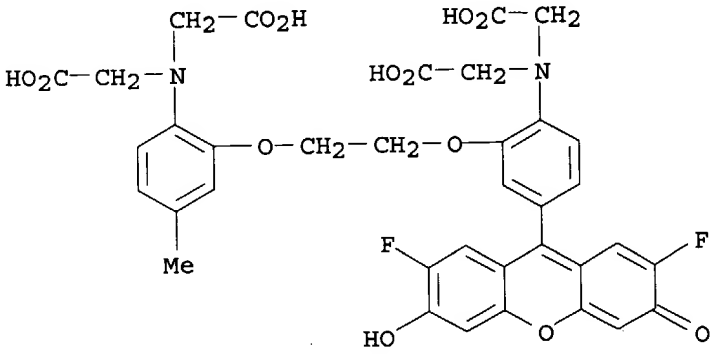


IT **273221-59-3**, **Fluo 4**
RL: TEM (Technical or engineered material use); USES (Uses)

(**Fluo 4**; environmental detection reagent with fluorophores)

RN 273221-59-3 HCAPLUS

CN Glycine, N-[2-[2-[2-[bis(carboxymethyl)amino]-5-(2,7-difluoro-6-hydroxy-3-oxo-3H-xanthen-9-yl)phenoxy]ethoxy]-4-methylphenyl]-N-(carboxymethyl)- (9CI) (CA INDEX NAME)

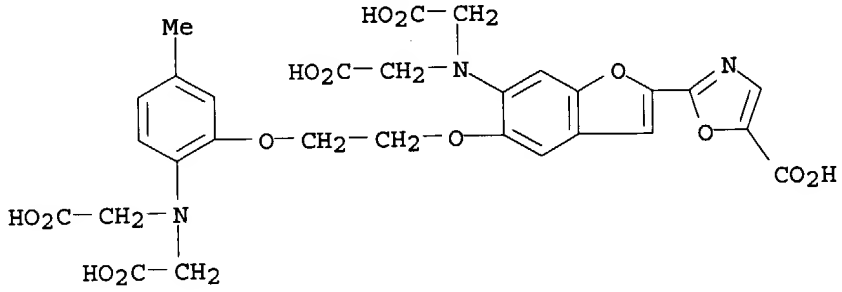


IT **96314-98-6**, **Fura 2 123632-39-3**, **Fluo-3**

RL: TEM (Technical or engineered material use); USES (Uses) (environmental detection reagent with fluorophores)

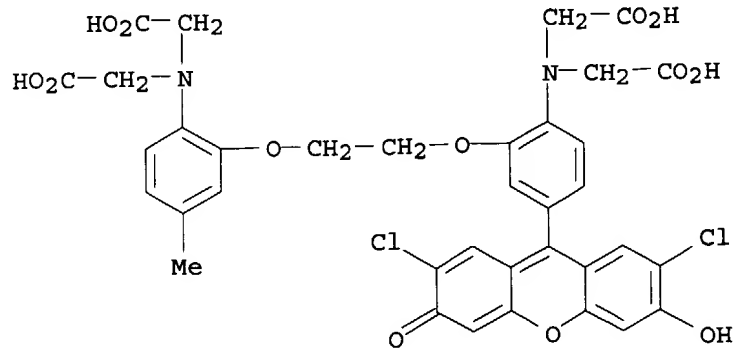
RN 96314-98-6 HCAPLUS

CN 5-Oxazolecarboxylic acid, 2-[6-[bis(carboxymethyl)amino]-5-[2-[2-[bis(carboxymethyl)amino]-5-methylphenoxy]ethoxy]-2-benzofuranyl]- (9CI) (CA INDEX NAME)



RN 123632-39-3 HCAPLUS

CN Glycine, N-[2-[2-[2-[bis(carboxymethyl)amino]-5-(2,7-dichloro-6-hydroxy-3-oxo-3H-xanthen-9-yl)phenoxy]ethoxy]-4-methylphenyl]-N-(carboxymethyl)- (9CI) (CA INDEX NAME)



L47 ANSWER 6 OF 8 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:647803 HCAPLUS
DN 133:293029
ED Entered STN: 17 Sep 2000
TI Dual video microscopic imaging of **membrane potential** and cytosolic calcium of immunoidentified embryonic rat cortical cells
AU Maric, Dragan; Maric, Irina; Barker, Jeffery L.
CS Laboratory of Neurophysiology, National Institute of Neurological Disorders and Stroke, National Institutes of Health, Bethesda, MD, 20892, USA
SO Methods (Orlando, Florida) (2000), 21(4), 335-347
CODEN: MTHDE9; ISSN: 1046-2023
PB Academic Press
DT Journal
LA English
CC 9-4 (Biochemical Methods)
Section cross-reference(s): 13
AB **Membrane potential** (MP) and cytosolic Ca2+ (Cac2+) constitute important components involved in the physiol. regulation of a myriad of cell functions in eukaryotic organisms. In particular, during development of the central nervous system, both properties are thought to be important in the regulation of cell cycle, cell migration, cell differentiation, cell-cell communication, and naturally occurring cell death. However, obtaining insight into the precise relationship between these two parameters of cell function is relatively limited either by tech. difficulties inherent in using elec. recordings of membrane properties in conjunction with optical imaging of single cells or by employing optical imaging of either one or another property alone. Here, we describe in detail a novel strategy to record changes in both MP and Cac2+ from many intact single cells in a noninvasive manner using digital video microscopy. This method involves double-loading the cells with voltage- and calcium-sensitive fluorescent indicator dyes, green oxonol, and **fura-2**, which can be sequentially excited with a mercury arc lamp filtered at appropriate wavelengths and their resulting emissions can be captured with an intensified charged-coupled device camera at 1-s intervals. As an example of the utility of dual-recording strategy, we present data on a distinct functional expression of excitable membrane and cytoplasmic calcium properties in proliferating and differentiating embryonic rat cerebral cortical cells. (c) 2000 Academic Press.
ST video microscopy imaging **membrane potential** cytosol calcium immunoidentified cell
IT GABA receptors
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(GABAA; dual video microscopic imaging of **membrane potential** and receptor-mediated calcium signaling in immunoidentified embryonic rat cortical cells)
IT Glutamate receptors
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(NMDA-binding; dual video microscopic imaging of **membrane potential** and receptor-mediated calcium signaling in immunoidentified embryonic rat cortical cells)
IT **Membrane potential**
(biol.; dual video microscopic imaging of **membrane potential** and cytosolic calcium of immunoidentified embryonic rat cortical cells)
IT Biological transport
(calcium; dual video microscopic imaging of **membrane potential** and cytosolic calcium of immunoidentified embryonic

rat cortical cells)
IT Nervous system
(central; dual video microscopic imaging of **membrane potential** and cytosolic calcium of immunoidentified embryonic rat cortical cells)
IT Brain
(cerebral cortex; dual video microscopic imaging of **membrane potential** and cytosolic calcium of immunoidentified embryonic rat cortical cells)
IT Cytoplasm
(cytosol; dual video microscopic imaging of **membrane potential** and cytosolic calcium of immunoidentified embryonic rat cortical cells)
IT Nerve
(differentiation; dual video microscopic imaging of **membrane potential** and cytosolic calcium of immunoidentified embryonic rat cortical cells)
IT Cell proliferation
Embryo, animal
Fluorescence microscopy
Neuroglia
(dual video microscopic imaging of **membrane potential** and cytosolic calcium of immunoidentified embryonic rat cortical cells)
IT Calcium channel
Sodium channel
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(dual video microscopic imaging of **membrane potential** and cytosolic calcium of immunoidentified embryonic rat cortical cells)
IT Muscarinic receptors
Purinoceptors
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(dual video microscopic imaging of **membrane potential** and receptor-mediated calcium signaling in immunoidentified embryonic rat cortical cells)
IT Immunoassay
(immunol. staining; dual video microscopic imaging of **membrane potential** and cytosolic calcium of immunoidentified embryonic rat cortical cells)
IT Glutamate receptors
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(kainate-binding; dual video microscopic imaging of **membrane potential** and receptor-mediated calcium signaling in immunoidentified embryonic rat cortical cells)
IT Cell differentiation
Cell differentiation
(neuronal; dual video microscopic imaging of **membrane potential** and cytosolic calcium of immunoidentified embryonic rat cortical cells)
IT Biological transport
(sodium; dual video microscopic imaging of **membrane potential** and cytosolic calcium of immunoidentified embryonic rat cortical cells)
IT **70363-83-6**, DiBAC4(3) **96314-98-6**, **Fura-2**
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(dual video microscopic imaging of **membrane potential** and cytosolic calcium of immunoidentified embryonic rat cortical cells)
IT 7440-23-5, Sodium, analysis 7440-70-2, Calcium, analysis
RL: ANT (Analyte); BPR (Biological process); BSU (Biological study,

unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(transport; dual video microscopic imaging of **membrane potential** and cytosolic calcium of immunoidentified embryonic rat cortical cells)

RE.CNT 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE
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(2) Becherer, U; J Neurobiol 1997, V32, P11 HCAPLUS
(3) Behar, T; J Neurosci 1996, V16, P1808 HCAPLUS
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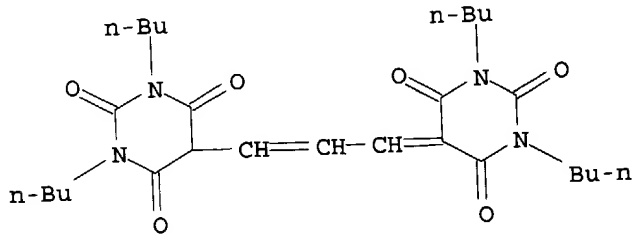
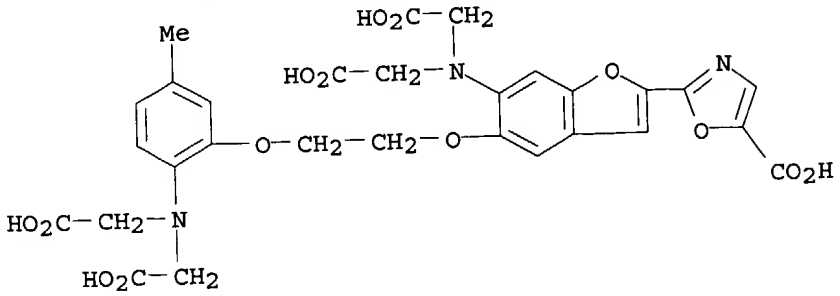
IT **70363-83-6**, DiBAC4(3) **96314-98-6**, **Fura-2**
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(dual video microscopic imaging of **membrane potential** and cytosolic calcium of immunoidentified embryonic rat cortical cells)

RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



RN 96314-98-6 HCAPLUS
CN 5-Oxazolecarboxylic acid, 2-[6-[bis(carboxymethyl)amino]-5-[2-[2-[bis(carboxymethyl)amino]-5-methylphenoxy]ethoxy]-2-benzofuranyl]- (9CI) (CA INDEX NAME)



L47 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:127266 HCAPLUS
DN 132:298905
ED Entered STN: 24 Feb 2000
TI Sensitive spectrofluorimetric and spectrophotometric methods for the determination of thonzylamine hydrochloride in pharmaceutical preparations based on coupling with dimethylbarbituric acid in the presence of dicyclohexylcarbodiimide
AU Sabry, S. M.; Abdel-Hay, M. H.; Barary, M. H.; Belal, T. S.
CS Faculty of Pharmacy, Department of Pharmaceutical Analytical Chemistry, University of Alexandria, Alexandria, Egypt
SO Journal of Pharmaceutical and Biomedical Analysis (2000), 22(2), 257-264
CODEN: JPBADA; ISSN: 0731-7085
PB Elsevier Science B.V.
DT Journal
LA English
CC 64-3 (Pharmaceutical Analysis)
AB Two sensitive and selective spectrophotometric and spectrofluorimetric procedures were developed for the determination of thonzylamine hydrochloride (THAH) in tablets and nasal drops. The methods were based on Konig reaction which resulted in an orange-yellow fluorescent product. The orange-yellow product of the interaction between the dicyclohexylcarbodiimide, THAH and dimethylbarbituric acid showed an absorption maximum at 492 nm, a first-derivative signal at 494 nm and a fluorescence emission peak at 518 nm (λex 492 nm). The orange-yellow product was stable for at least 2 h. The reaction conditions were studied and optimized. The reaction obeyed Beer's law over the ranges 8-20 and 0.2-2.0 μg mL-1 for the derivative spectrophotometric and fluorimetric measurements, resp. The detection limits were 0.29 and 0.018 μg mL-1 for the spectrophotometric and fluorimetric measurements, resp. The proposed methods were applied to the anal. of pharmaceutical formulations containing THAH, either alone or in combination with naphazoline nitrate.
ST thonzylamine detn spectrofluorimetry dimethylbarbituric acid; spectrophotometry thonzylamine detn dimethylbarbituric acid
IT Fluorometry
Spectrophotometry
(dimethylbarbituric acid in spectrofluorimetric and spectrophotometric methods for determination of thonzylamine in pharmaceuticals)
IT 91-85-0, Thonzylamine
RL: ANT (Analyte); ANST (Analytical study)
(dimethylbarbituric acid in spectrofluorimetric and spectrophotometric methods for determination of thonzylamine in pharmaceuticals)
IT 538-75-0, DCC 769-42-6, Dimethylbarbituric acid
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(dimethylbarbituric acid in spectrofluorimetric and spectrophotometric methods for determination of thonzylamine in pharmaceuticals)
IT **264278-60-6**
RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)

(dimethylbarbituric acid in spectrofluorimetric and spectrophotometric methods for determination of thonzylamine in pharmaceuticals)

IT 542-78-9, Malonaldehyde
RL: FMU (Formation, unclassified); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent)
(dimethylbarbituric acid in spectrofluorimetric and spectrophotometric methods for determination of thonzylamine in pharmaceuticals)

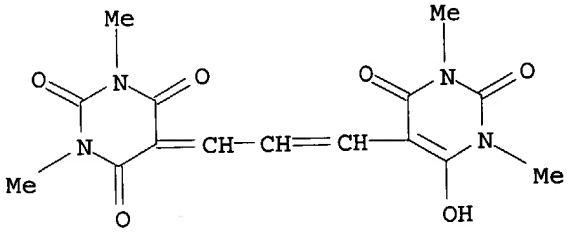
RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Celeste, A; J Assoc Offic Anal Chemists 1966, V49, P541 HCAPLUS
(2) Chen, S; Anal Biochem 1984, V140, P196 HCAPLUS
(3) Chen, S; Anal Chem 1985, V57, P1461 HCAPLUS
(4) Esteve-Romero, J; Talanta 1995, V42, P737 HCAPLUS
(5) Hudson, J; J Can Soc Forensic Sci 1995, V28, P137 HCAPLUS
(6) Miller, J; Analyst 1991, V113, P3
(7) Nakano, S; Yakugaku Zasshi 1972, V92, P411 HCAPLUS
(8) Ong, C; J Chromatogr 1991, V588, P335 HCAPLUS
(9) Reynolds, J; The Extra Pharmacopoeia, thirtieth ed 1993, P946
(10) Vetuschi, C; Farmaco 1990, V45, P771
(11) Vetuschi, C; Spectrosc Lett 1989, V22, P41 HCAPLUS
(12) Wilchek, M; Anal Biochem 1981, V114, P419 HCAPLUS

IT **264278-60-6**
RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)
(dimethylbarbituric acid in spectrofluorimetric and spectrophotometric methods for determination of thonzylamine in pharmaceuticals)

RN 264278-60-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dimethyl-5-[3-(1,2,3,4-tetrahydro-6-hydroxy-1,3-dimethyl-2,4-dioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



Clear

L47 ANSWER 8 OF 8 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1987:174304 HCAPLUS
DN 106:174304
ED Entered STN: 29 May 1987
TI IgE receptor-mediated depolarization of rat basophilic leukemia cells measured with the fluorescent probe bis-oxonol
AU Mohr, F. Charles; Fewtrell, Clare
CS New York State Coll. Vet. Med., Cornell Univ., Ithaca, NY, 14853, USA
SO Journal of Immunology (1987), 138(5), 1564-70
CODEN: JOIMA3; ISSN: 0022-1767
DT Journal
LA English
CC 15-3 (Immunochemistry)
AB Receptor-mediated changes on plasma **membrane potential** were recorded in rat basophilic leukemia (RBL) cells with the potential-sensitive fluorescent indicator bis-oxonol. Depolarization of the mitochondria with metabolic inhibitors was not detected by bis-oxonol, suggesting that only potential changes across the plasma membrane were being measured. The resting **membrane potential** of RBL cells was largely generated by the equilibrium distribution of K+ and not

through electrogenic activity of the Na pump. Depolarization was maintained as long as IgE receptors remained aggregated. Apparently, at physiol. Ca concns. a large portion of the measured potential change may be due to Ca influx across the plasma membrane. Prevention of Ca influx by lanthanum, disruption of aggregated receptors, or prior depolarization in a high K+ saline solution completely inhibited the antigen-induced depolarization. The time course of the antigen-stimulated increase in bis-oxonol fluorescence was similar, but not identical to the antigen-stimulated rise in cytoplasmic free ionized Ca measured with **fura-2.** Antigen-stimulated depolarization was inhibited by removing both Ca and Na and could be restored by the addition of either ion. Reduction of total cellular ATP inhibited depolarization in response to antigen stimulation.

ST IgE receptor basophil leukemia depolarization

IT Basophil
(depolarization of, IgE receptor-mediated, bis-oxonol as indicator for)

IT Receptors
RL: BIOL (Biological study)
(for IgE, basophil cell depolarization mediated by, bis-oxonol as indicator for)

IT Biological transport
(of calcium and sodium, in basophil cell membrane, IgE receptor effect on)

IT Immunoglobulins
RL: BIOL (Biological study)
(E, receptors for, basophil depolarization mediated by, bis-oxonol as indicator for)

IT Electric activity
(potential, of basophil, IgE receptor modulation of, bis-oxonol as indicator for)

IT 56-65-5, Adenosine triphosphate, biological studies
RL: BIOL (Biological study)
(IgE receptor-mediated depolarization of basophil cells dependence on)

IT **47623-98-3**
RL: BIOL (Biological study)
(as indicator for IgE receptor-mediated depolarization of basophil)

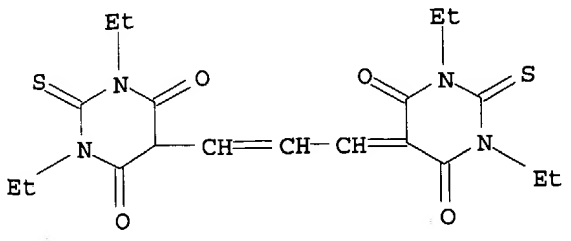
IT 7440-23-5, Sodium, biological studies 7440-70-2, Calcium, biological studies
RL: BIOL (Biological study)
(biol. transport of, in basophil cell membrane, IgE receptor effect on)

IT 7440-09-7, Potassium, biological studies
RL: BIOL (Biological study)
(permeability to, by basophil cell membrane, IgE receptor-mediated depolarization in relation to)

IT **47623-98-3**
RL: BIOL (Biological study)
(as indicator for IgE receptor-mediated depolarization of basophil)

RN 47623-98-3 HCAPLUS

CN 4,6(1H,5H)-Pyrimidinedione, 5-[3-(1,3-diethylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]-1,3-diethyldihydro-2-thioxo- (9CI) (CA INDEX NAME)



=> d 153 bib abs hitstr tot

L53 ANSWER 1 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:473269 HCAPLUS
DN 139:47180
TI Treatments for conditions caused by neurotoxic β-amyloid peptide aggregates using compounds that decrease membrane depolarization or calcium influx caused by aggregated β-amyloid
IN Ingram, Vernon M.; Blanchard, Barbara J.; Stockwell, Brent R.
PA USA
SO U.S. Pat. Appl. Publ., 33 pp., Cont.-in-part of U.S. Ser. No. 706,574.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 2

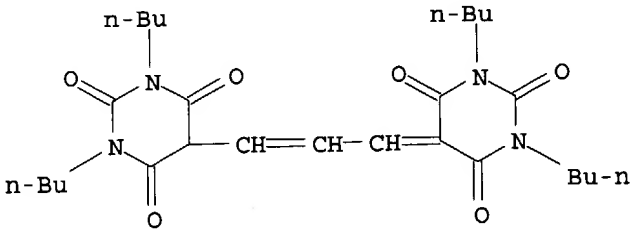
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003114510	A1	20030619	US 2002-51663	20020118 <--
	WO 2002035987	A2	20020510	WO 2001-US46957	20011105 <--
	WO 2002035987	A3	20020801		
	W: CA, JP				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
	EP 1341548	A2	20030910	EP 2001-990891	20011105 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
	US 2003105152	A1	20030605	US 2002-143534	20020510 <--
	WO 2003068147	A2	20030821	WO 2003-US1672	20030121 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRAI	US 2000-706574	A2	20001103 <--		
	WO 2001-US46957	W	20011105 <--		
	US 2002-51663	A2	20020118 <--		
	US 2002-143534	A	20020510 <--		

AB The invention involves identification of a mechanism of β-amyloid peptide cytotoxicity, which enables treatment of conditions caused by β-amyloid peptide aggregates by administration of compds. which antagonize the mechanism of cytotoxicity. The invention includes the identification and isolation of compds. which can reduce the neurotoxic effects of such aggregates. Methods for treating conditions resulting from neurotoxic β-amyloid peptide aggregates, such as Alzheimer's disease and pharmaceutical prepns. are provided. Also provided are methods for selecting addnl. compds. which can reduce the neurotoxic effects of β-amyloid aggregates. Specifically claimed is a method for treating Alzheimer's disease using a compound that decreases membrane depolarization of neuronal cells or decreases the calcium influx caused by aggregated β-amyloid (Aβ) protein degradation products,. The compds. used in treatment are tyrosine kinase inhibitors, chloride channel antagonists, dopamine receptor agonists, and α2-adrenergic receptor antagonists. These compds. can be used in combination with β-amyloid vaccine.

IT **70363-83-6**, Bis(1,3-dibutylbarbituric acid) trimethine oxonol
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); ANST

(Analytical study); BIOL (Biological study); USES (Uses)
(as potentiometric agent for drug screening; treatment for conditions caused by neurotoxic β-amyloid peptide aggregates using compds. that decrease membrane depolarization or calcium influx caused by aggregated β-amyloid)

RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



L53 ANSWER 2 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:435317 HCAPLUS
DN 139:30831
TI Treatments for neurotoxicity in Alzheimer's disease
IN Ingram, Vernon M.; Blanchard, Barbara J.; Stockwell, Brent R.
PA USA
SO U.S. Pat. Appl. Publ., 34 pp., Cont.-in-part of U.S. Ser. No. 51,663.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 2

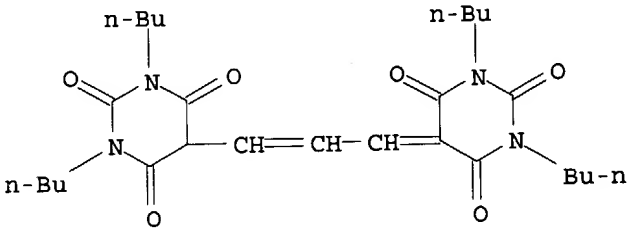
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003105152	A1	20030605	US 2002-143534	20020510 <--
	EP 1341548	A2	20030910	EP 2001-990891	20011105 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
	US 2003114510	A1	20030619	US 2002-51663	20020118 <--
	WO 2003068147	A2	20030821	WO 2003-US1672	20030121 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRAI	US 2000-706574	A2	20001103 <--		
	US 2002-51663	A2	20020118 <--		
	WO 2001-US46957	W	20011105 <--		
	US 2002-143534	A	20020510 <--		

AB The invention involves identification of a mechanism of β-amyloid peptide cytotoxicity, which enables treatment of conditions caused by β-amyloid peptide aggregates by administration of compds. which antagonize the mechanism of cytotoxicity. The invention includes the identification and isolation of compds. which can reduce the neurotoxic effects of such aggregates. Methods for treating conditions resulting from neurotoxic β-amyloid peptide aggregates, such as Alzheimer's disease and pharmaceutical prepns. are provided. Also provided are methods for selecting addnl. compds. which can reduce the neurotoxic

effects of β-amyloid aggregates. Aβ1-42 aggregates increased neuronal cell depolarization in rat PC12 and human NT neuronal cells. A random library of 1540 biol. active compds. was screened against undifferentiated PC12 cells pretreated with Aβ1-42 peptide. The most effective elimination of depolarization was achieved with two tyrosine kinase inhibitors, DAPH1 (4,5-dianilinophthalimide, EGF-receptor specific) and Tyrphostin AG879 (TrkA specific), and also nafoxidine (antiestrogen receptor, chloride channel antagonist). These were active in low micromolar concentration

IT **70363-83-6**, Bis(1,3-dibutylbarbituric acid) trimethine oxonol
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(as potentiometric agent for drug screening; compns. and methods for treatment of β-amyloid aggregate neurotoxicity in Alzheimer's disease and for drug screening)

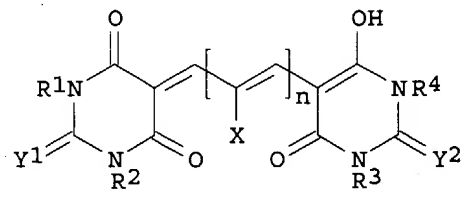
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



L53 ANSWER 3 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:173924 HCAPLUS
DN 138:222967
TI Fluorescent barbituric acid-derived polymethine dyes and their production
IN Kaler, Gregory; Threlfall, Clinton J.; Basava, Channa; Okun, Ilya
PA Axiom Biotechnologies, Inc., USA
SO PCT Int. Appl., 17 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003019289	A1	20030306	WO 2002-US27099	20020823 <--
	W: AE, AG, AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EE, EE, ES, FI, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2003100762	A1	20030529	US 2002-227466	20020823 <--
PRAI	US 2001-315276P	P	20010827 <--		

GI



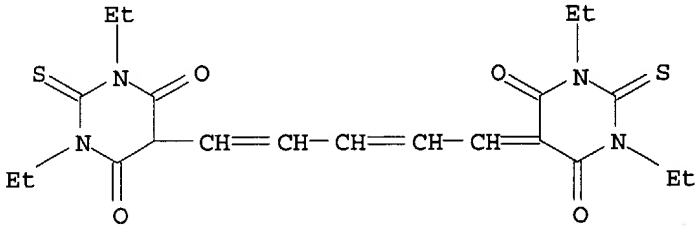
I

AB Fluorescent polymethine dyes (I; R1, R2, R3, R4 = H, allyl, C1-20-alkyl, C1-20-alkoxycarbonyl, C6-10-aryl; X = H, halogen; Y1, Y2 = O, S; n = 1, 2) are obtained. I are useful as fluorescent probes for biol. application such as **membrane potential** determination In an example, 1,3-diethylthiobarbituric acid was stirred with N-(5-anilino-2,4-pentadienylidene)aniline monohydrochloride to give fluorescent I (R1, R2, R3, R4 = Me; X = H; Y1, Y2 = S; n = 1).

IT **24765-31-9P**
RL: BUU (Biological use, unclassified); IMF (Industrial manufacture); TEM (Technical or engineered material use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(fluorescent barbituric acid-derived polymethine dyes and probes)

RN 24765-31-9 HCAPLUS

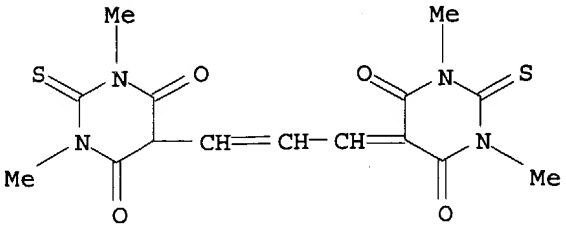
CN 4,6(1H,5H)-Pyrimidinedione, 5-[5-(1,3-diethylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2,4-pentadienylidene]-1,3-diethyldihydro-2-thioxo- (9CI) (CA INDEX NAME)



IT **3316-73-2 47541-61-7 500604-58-0**
RL: BUU (Biological use, unclassified); TEM (Technical or engineered material use); BIOL (Biological study); USES (Uses)
(fluorescent barbituric acid-derived polymethine dyes and probes)

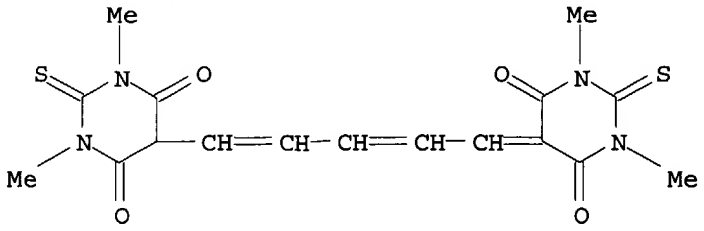
RN 3316-73-2 HCAPLUS

CN 4,6(1H,5H)-Pyrimidinedione, dihydro-1,3-dimethyl-5-[3-(tetrahydro-1,3-dimethyl-4,6-dioxo-2-thioxo-5(2H)-pyrimidinylidene)-1-propenyl]-2-thioxo- (9CI) (CA INDEX NAME)

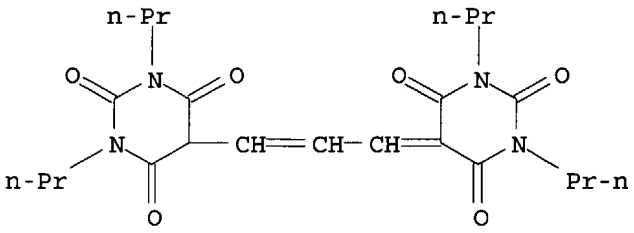


RN 47541-61-7 HCAPLUS

CN 4,6(1H,5H)-Pyrimidinedione, 5-[5-(hexahydro-1,3-dimethyl-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2,4-pentadienylidene]dihydro-1,3-dimethyl-2-thioxo- (9CI) (CA INDEX NAME)



RN 500604-58-0 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dipropyl-5-[3-(tetrahydro-2,4,6-trioxo-1,3-dipropyl-5(2H)-pyrimidinylidene)-1-propenyl]- (9CI) (CA INDEX NAME)



RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

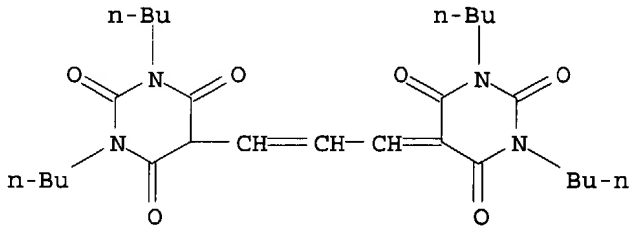
L53 ANSWER 4 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:861980 HCAPLUS
DN 138:201199
TI Multiparametric flow cytometry and cell sorting for the assessment of viable, injured, and dead Bifidobacterium cells during bile salt stress
AU Ben Amor, Kaouther; Breeuwer, Pieter; Verbaarschot, Patrick; Rombouts, Frank M.; Akkermans, Antoon D. L.; De Vos, Willem M.; Abee, Tjakko
CS Laboratory of Food Microbiology, Laboratory of Microbiology, Wageningen University, Wageningen, EV 6700, Neth.
SO Applied and Environmental Microbiology (**2002**), 68(11), 5209-5216
CODEN: AEMIDF; ISSN: 0099-2240
PB American Society for Microbiology
DT Journal
LA English
AB Using a flow cytometry-based approach, we assessed the viability of Bifidobacterium lactis DSM 10140 and Bifidobacterium adolescentis DSM 20083 during exposure to bile salt stress. Carboxyfluorescein diacetate (cFDA), propidium iodide (PI), and oxonol [DiBAC4(3)] were used to monitor esterase activity, membrane integrity, and **membrane potential**, resp., as indicators of bacterial viability. Single staining with these probes rapidly and noticeably reflected the behavior of the 2 strains during stress exposure. However, the flow cytometry results tended to overestimate the viability of the 2 strains compared to plate counts, which appeared to be related to the nonculturability of a fraction of the population as a result of sublethal injury caused by bile salts. When the cells were simultaneously stained with cFDA and PI, flow cytometry and cell sorting revealed a striking physiol. heterogeneity within the stressed bifidobacterium population. Three subpopulations could be identified based on their differential uptake of the probes: cF-stained, cF and PI double-stained, and PI-stained subpopulations, representing viable, injured, and dead cells, resp. Following sorting and recovery, a significant fraction of the double-stained subpopulation (40%)

could resume growth on agar plates. Our results show that in situ assessment of the physiol. activity of stressed bifidobacteria using multiparameter flow cytometry and cell sorting may provide a powerful and sensitive tool for assessment of the viability and stability of probiotics.

IT **70363-83-6**
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(multiparametric flow cytometry and cell sorting for the assessment of viable, injured, and dead Bifidobacterium cells during bile salt stress)

RN 70363-83-6 HCAPLUS

CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



RE.CNT 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

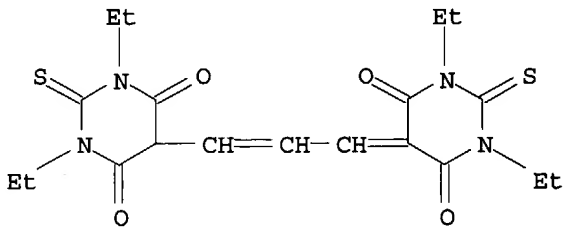
L53 ANSWER 5 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:277827 HCAPLUS
DN 138:52149
TI Discrimination between cystic fibrosis and CFTR-corrected epithelial cells by a **membrane potential**-sensitive probe
AU Coclet-Ninin, Joelle; Rochat, Thierry; Poitry, Serge; Chanson, Marc
CS University Hospital of Geneva, Geneva, Switz.
SO Experimental Lung Research (**2002**), 28(3), 181-199
CODEN: EXLRDA; ISSN: 0190-2148
PB Taylor & Francis
DT Journal
LA English
AB Methods to detect functional cystic fibrosis transmembrane conductance regulator (CFTR) are needed for the assessment of new therapies in cystic fibrosis (CF). We have combined patch-clamp and fluorimetric techniques to investigate whether the fluorescent voltage-sensitive probe bis-(1,3-diethylthiobarbituric acid) trimethine oxonol (DiSBAC2(3)) discriminates between changes of **membrane potential** (Vm) evoked by cAMP in CF and CFTR-corrected epithelial cells. About 60% of the CFTR-corrected cells increased their membrane conductance and depolarized in response to cAMP, as compared to about 20% of CF cells. CFTR was found to contribute only to a fraction of the cAMP-induced responses, as indicated by the differential effects of Cl- channel blockers. Simultaneous recording of fluorescence (δF) and **membrane potential** revealed that δF detected Vm changes as small as 10 mV. The relationship between δF and δVm however, was not proportional. When a large number of cells were analyzed by digital imaging, an increase in δF in response to cAMP was detected in the majority of CFTR-corrected cells, but only in a small proportion of CF cells. The results indicate that the DiSBAC2(3) approach is a valid tool to compare cell populations with different proportions of cells responding to CFTR activation by cAMP. It cannot be used, however, for quant. assessment of functional CFTR in individual CF cells.

IT **47623-98-3**, Bis-(1,3-diethylthiobarbituric acid) trimethine oxonol
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)

(discrimination between cystic fibrosis and CFTR-corrected epithelial cells by a **membrane potential**-sensitive fluorescent probe)

RN 47623-98-3 HCAPLUS

CN 4,6(1H,5H)-Pyrimidinedione, 5-[3-(1,3-diethylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]-1,3-diethyldihydro-2-thioxo- (9CI) (CA INDEX NAME)



RE.CNT 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L53 ANSWER 6 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:213283 HCAPLUS

DN 138:12451

TI Rapid antimicrobial susceptibility testing of urinary tract isolates and samples by flow cytometry

AU Gauthier, Christian; St-Pierre, Yves; Villemur, Richard

CS INRS-Institut Armand-Frappier, Laval, QC, H7V 1B7, Can.

SO Journal of Medical Microbiology (**2002**), 51(3), 192-200
CODEN: JMMIAV; ISSN: 0022-2615

PB Lippincott Williams & Wilkins

DT Journal

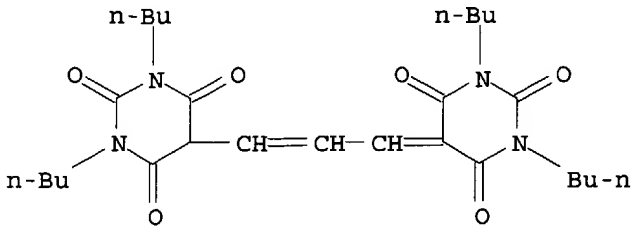
LA English

AB A multiparametric flow cytometry antimicrobial susceptibility test was developed and its performance was evaluated on clin. urine isolates and samples in comparison with standard methods. Alterations in cytoplasmic membrane integrity were monitored by propidium iodide, and the anionic probe bis-(1,3-dibutylbarbituric acid) trimethine oxonol (DiBAC4(3)) was used to measure changes in **membrane potential.** Microbial size and cellular content were analyzed by light scattering. Twelve antibiotics were tested on 6 ATCC control strains, 22 urine isolates and 19 clin. urine samples, variously containing Escherichia coli, Pseudomonas aeruginosa, Klebsiella pneumoniae, Proteus mirabilis, Enterococcus faecalis, Staphylococcus aureus, S. saprophyticus and S. epidermidis. Agreement between the flow cytometry results, broth microdilution and disk diffusion tests was 93.9% (n = 328 tests). Of the 20 discrepancies observed, 18 were for species other than E. coli. Perfect correlation was obtained with five antibiotics, whereas norfloxacin, nitrofurantoin and tetracycline were responsible for 13(65%) of the 20 discrepancies.

IT **70363-83-6**, Bis-(1,3-dibutylbarbituric acid) trimethine oxonol
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(antimicrobial susceptibility testing of urinary tract isolates and samples by flow cytometry)

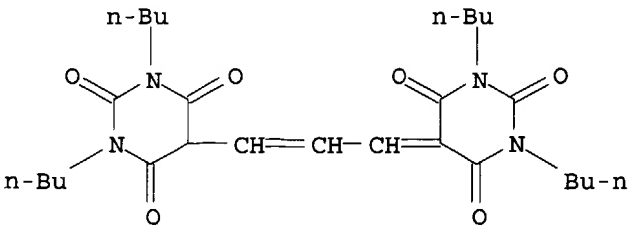
RN 70363-83-6 HCAPLUS

CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

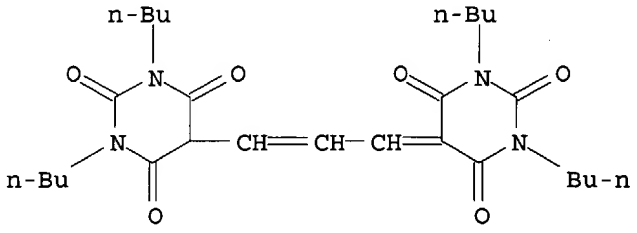
L53 ANSWER 7 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:156900 HCAPLUS
DN 137:194915
TI Development and evaluation of high throughput functional assay methods for hERG potassium channel
AU Tang, Weimin; Kang, Jiesheng; Wu, Xiaying; Rampe, David; Wang, Lin; Shen, Hong; Li, Zhuyin; Dunnington, Damien; Garyantes, Tina
CS Department of Profiling and High Throughput Screening, Aventis Pharmaceuticals, Bridgewater, NJ, USA
SO Journal of Biomolecular Screening (**2001**), 6(5), 325-331
CODEN: JBISF3; ISSN: 1087-0571
PB Mary Ann Liebert, Inc.
DT Journal
LA English
AB Three functional hERG channel assay methods have been developed and evaluated. The methods were tested against five known hERG channel inhibitors: dofetilide, terfenadine (Seldane), sertindole (Serdolect), astemizole (Hismanal), and cisapride (Propulsid). The DiBAC4(3)-based assays were found to be the most economical but had high false-hit rates as a result of the interaction of dye with the test compds. The **membrane potential** dye assay had fewer color-quenching problems but was expensive and still gave false hits. The nonradioactive Rb+ efflux assay was the most sensitive of all the assays evaluated and had the lowest false-hit rate.
IT **70363-83-6**, DiBAC4(3)
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**membrane potential**-sensitive dye; development and evaluation of high throughput functional assay methods for human ERG (hERG) potassium channel)
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L53 ANSWER 8 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:156898 HCAPLUS
DN 137:210341
TI Validation of FLIPR **membrane potential** dye for high throughput screening of potassium channel modulators
AU Whiteaker, Kristi L.; Gopalakrishnan, Sujatha M.; Groebe, Duncan; Shieh, Char-Chang; Warrior, Usha; Burns, David J.; Coghlan, Michael J.; Scott, Victoria E.; Gopalakrishnan, Murali
CS Neuroscience Research, Abbott Laboratories, Abbott Park, IL, USA
SO Journal of Biomolecular Screening (**2001**), 6(5), 305-312
CODEN: JBISF3; ISSN: 1087-0571
PB Mary Ann Liebert, Inc.
DT Journal
LA English
AB A fluorescence-based assay using the FLIPR **Membrane Potential** Assay Kit (FMP) was evaluated for functional characterization and high throughput screening (HTS) of potassium channel (ATP-sensitive K+ channel; KATP) modulators. The FMP dye permits a more sensitive evaluation of changes in **membrane potential** with a more rapid response time relative to DiBAC4(3). The time course of responses is comparable to ligand-evoked activation of the channel measured by patch-clamp studies. The pharmacol. profile of the K+ channel evaluated by using reference KATP channel openers is in good agreement with that derived previously by DiBAC4(3)-based FLIPR assays. Improved sensitivity of responses together with the diminished susceptibility to artifacts such as those evoked by fluorescent compds. or quenching agents makes the FMP dye an alternative choice for HTS screening of potassium channel modulators.
IT **70363-83-6**, DiBAC4(3)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(comparison; validation of FLIPR **membrane potential** dye for high throughput screening of potassium channel modulators)
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



L53 ANSWER 9 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:90336 HCAPLUS
DN 136:147469
TI Ion channel assay methods using electrical stimulation
IN Maher, Michael P.; Gonzalez, Jesus E., III
PA Aurora Biosciences Corporation, USA
SO PCT Int. Appl., 146 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002008748	A2	20020131	WO 2001-US21652	20010709 <--
	WO 2002008748	A3	20020502		
	WO 2002008748	C2	20030612		

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RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

US 2002025568	A1	20020228	US 2001-804480	20010312	<--
US 2002028480	A1	20020307	US 2001-804580	20010312	<--
US 6686193	B2	20040203			
US 2002045159	A1	20020418	US 2001-804457	20010312	<--
EP 1303757	A2	20030423	EP 2001-953433	20010709	<--

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

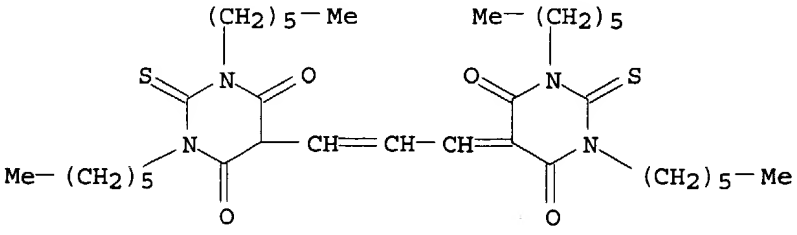
PRAI US 2000-217219P	P	20000710	<--	
US 2000-217221P	P	20000710	<--	
US 2000-217666P	P	20000710	<--	
US 2000-217671P	P	20000710	<--	
US 2001-804457	A	20010312	<--	
US 2001-804458	A	20010312	<--	
US 2001-804480	A	20010312	<--	
US 2001-804580	A	20010312	<--	
WO 2001-US21652	W	20010709	<--	

AB A method of characterizing the biol. activity of a candidate compound may include exposing cells to the candidate compound, and then exposing the cells to a repetitive application of elec. fields so as to set the transmembrane potential to a level corresponding to a pre-selected voltage dependent state of a target ion channel. Adherent RBL cells, endogenously expressing the potassium inward rectifier channel IRK1, were seeded into 96-well plates and loaded with FRET dyes. Three rows of wells contained 400 μM barium chloride to block the IRK1 channel. The plates were analyzed using a VIPR reader while being elec. stimulated with a biphasic stimulus train repeated at a frequency of 50 Hz and with a 5 ms/phase pulse duration.

IT **169211-44-3**, DiSBAC6(3)
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(DiSBAC6(3); ion channel assay methods using elec. stimulation)

RN 169211-44-3 HCAPLUS

CN 4,6(1H,5H)-Pyrimidinedione, 5-[3-(1,3-dihexylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]-1,3-dihexyldihydro-2-thioxo- (9CI) (CA INDEX NAME)

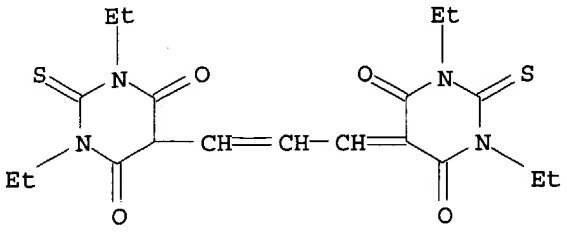


IT **47623-98-3**, DiSBAC2(3)
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(ion channel assay methods using elec. stimulation)

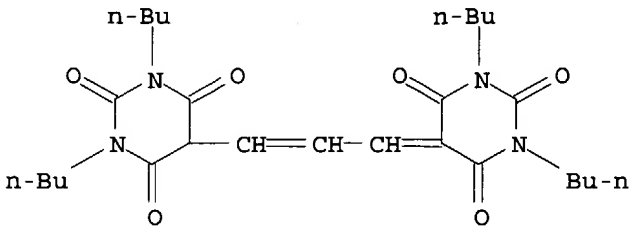
RN 47623-98-3 HCAPLUS

CN 4,6(1H,5H)-Pyrimidinedione, 5-[3-(1,3-diethylhexahydro-4,6-dioxo-2-thioxo-

5-pyrimidinyl)-2-propenylidene]-1,3-diethyldihydro-2-thioxo- (9CI) (CA INDEX NAME)



L53 ANSWER 10 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:704616 HCAPLUS
DN 137:2562
TI Convenient fluorescence-based methods to measure **membrane potential** and intracellular pH in the Archaeon Methanobacterium thermoautotrophicum
AU de Poorter, L. M. I.; Keltjens, J. T.
CS Department of Microbiology, Faculty of Science, University of Nijmegen, Nijmegen, NL-6525 ED, Neth.
SO Journal of Microbiological Methods (**2001**), 47(2), 233-241
CODEN: JMIMDQ; ISSN: 0167-7012
PB Elsevier Science Ireland Ltd.
DT Journal
LA English
AB New and improved methods to determine the **membrane potential** ($\Delta\Psi$) and the ΔpH in methanogenic archaea were developed and tested in Methanobacterium thermoautotrophicum strain ΔH. The ΔpH measurements took advantage of the pH-dependent fluorescence properties of coenzyme F420, the major intracellular electron carrier in the organism. The protonophore p-nitrophenol did not show any interference with the F420 fluorescence spectra and was therefore suitable to equalize internal and external pH. The method developed allowed the determination of the intracellular pH with an error of less than 0.05 pH units. **Membrane potentials** could easily be assessed using the fluorescent probe bis-(1,3-dibutylbarbituric acid)trimethine oxonol (DiBAC4(3)) with an accuracy of approx. 10 mV.Both methods were tested with cell suspensions of M. thermoautotrophicum incubated at medium pH values between 5.5 and 8. It was found that $\Delta\Psi$ and ΔpH values remained constant under these conditions. **Membrane potentials** were about -160 mV and ΔpH was kept at 0.35 pH units (inside minus outside) resulting in a total proton motive force of about -180 mV (inside neg.).
IT **70363-83-6**, (DiBAC4(3))
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(convenient fluorescence-based methods to measure **membrane potential** and intracellular pH in Archaeon Methanobacterium thermoautotrophicum)
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L53 ANSWER 11 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:668268 HCAPLUS
DN 135:223771
TI Identifying compounds that alter membrane biological potentials with fluorescent ionic dyes
IN Okun, Ilya; Okun, Alex; Kaler, Gregory
PA Axiom Biotechnologies, Inc., USA
SO U.S., 29 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6287758	B1	20010911	US 2000-535261	20000323 <--
	WO 2001071350	A2	20010927	WO 2001-US9052	20010320 <--
	WO 2001071350	A3	20020926		
	WO 2001071350	C2	20021219		
	W: AE, AG, AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EE, EE, ES, FI, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
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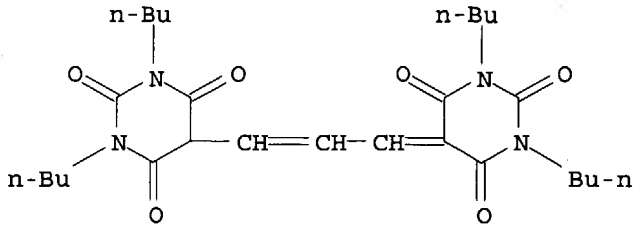
	EP 1269185	A2	20030102	EP 2001-922525	20010320 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2003528320	T2	20030924	JP 2001-569486	20010320 <--
PRAI	US 2000-535261	A	20000323 <--		
	WO 2001-US9052	W	20010320 <--		

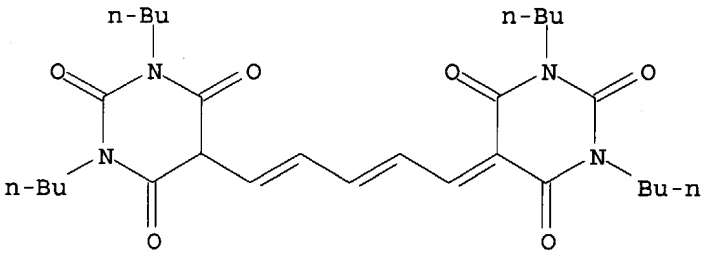
AB Sensitive methods for identifying compds. having biol. activity comprising combining living cells with two fluorescent membrane permeable ionic dyes having the same charge sign, the first of which has an emission spectrum which overlaps the excitation spectrum of the second fluorescent membrane penetrative dye. The fluorescence is then induced by illuminating the dyes at a wavelength corresponding to the excitation spectrum of the first fluorescent dye and emission is then registered at a wavelength corresponding to the emission spectrum of the second fluorescent dye (FRET). The change in the FRET is indicative of a modulation of cell **membrane potential** by the biol. active compds.

IT **70363-83-6**, DiBAC4(3)
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(DiBAC4(3); identifying compds. that alter membrane biol. potentials

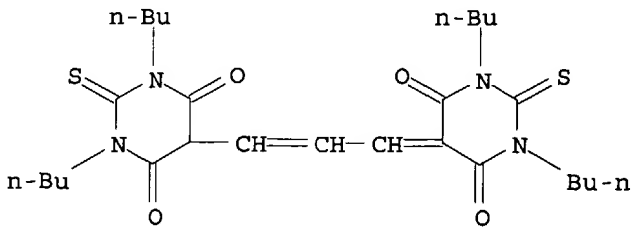
with fluorescent ionic dyes)
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



IT **63560-89-4**, DiBAC4(5)
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); ANST (Analytical study); BIOL (Biological biological study); PROC (Process); USES (Uses)
(DiBAC4(5); identifying compds. that alter membrane biol. potentials with fluorescent ionic dyes)
RN 63560-89-4 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[5-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2,4-pentadienylidene]- (9CI) (CA INDEX NAME)



IT **155703-07-4**, DiSBAC4(3)
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); ANST (Analytical study); BIOL (Biological biological study); PROC (Process); USES (Uses)
(DiSBAC4(3); identifying compds. that alter membrane biol. potentials with fluorescent ionic dyes)
RN 155703-07-4 HCAPLUS
CN 4,6(1H,5H)-Pyrimidinedione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]dihydro-2-thioxo- (9CI) (CA INDEX NAME)

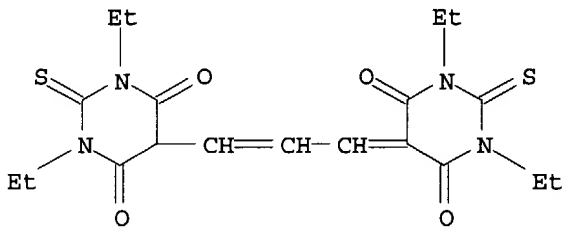


IT **47623-98-3**
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); ANST (Analytical

study); BIOL (Biological study); PROC (Process); USES (Uses)
(identifying compds. that alter membrane biol. potentials with fluorescent ionic dyes)

RN 47623-98-3 HCAPLUS

CN 4,6(1H,5H)-Pyrimidinedione, 5-[3-(1,3-diethylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]-1,3-diethyldihydro-2-thioxo- (9CI) (CA INDEX NAME)



RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L53 ANSWER 12 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2001:598216 HCAPLUS

DN 135:175338

TI Method for identifying substances which modulate the activity of hyperpolarization-activated cation channels

IN Jansen, Hans-willi; Brueggemann, Andrea; Heitsch, Holger; Goegelein, Heinz

PA Aventis Pharma Deutschland G.m.b.H., Germany

SO PCT Int. Appl., 52 pp.
CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001059153	A2	20010816	WO 2001-EP755	20010124 <--
	WO 2001059153	A3	20020411		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
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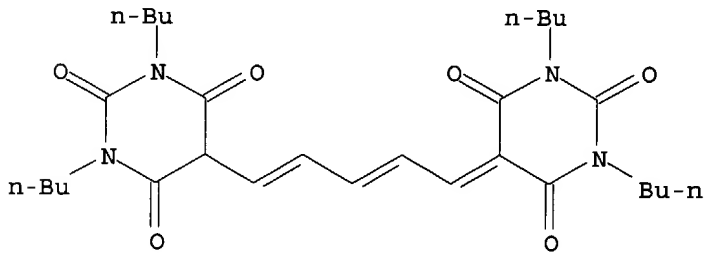
	EP 1257819	A2	20021120	EP 2001-951152	20010124 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2003522533	T2	20030729	JP 2001-558489	20010124 <--
	US 2003082513	A1	20030501	US 2002-67457	20020207 <--
PRAI	DE 2000-10006309	A	20000212 <--		
	WO 2001-EP755	W	20010124 <--		
	US 2001-779587	A1	20010209 <--		

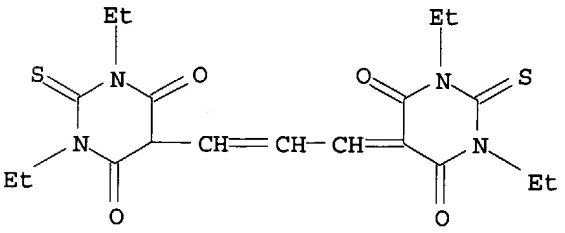
AB The invention relates to a method for identifying substances which modify the activity of hyperpolarization-activated cation-channels and to the use of this method for drug screening. Mammalian CHO and HEK cells expressing hyperpolarization-activated cation channels are hyperpolarized in the presence of potential-sensitive fluorescent dyes with a sodium-free isoosmotic buffer and the changes of the **membrane potential** are measured upon the addition of sodium ions and the

substance to be screened. The sodium-free buffer contains potassium ions, choline chloride, and N-methyl-D-glucamine. The cAMP concentration of the cells
is increased by the addition of a adenylate cyclase activator, e.g. Forskolin. Expressed hyperpolarization-activated cation channels are HCN1, HCN2, HCN3, HCN4, KAT1 or their heteromultimers. The method is used for high-throughput screening in combination with fluorescent imaging plate readers. The screening is also used for drug formulations.

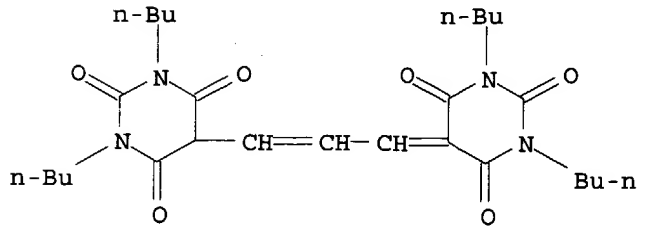
IT **63560-89-4**
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(DiBAC4(5); method for identifying substances which modulate activity of hyperpolarization-activated cation channels)
RN 63560-89-4 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[5-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2,4-pentadienylidene]- (9CI) (CA INDEX NAME)



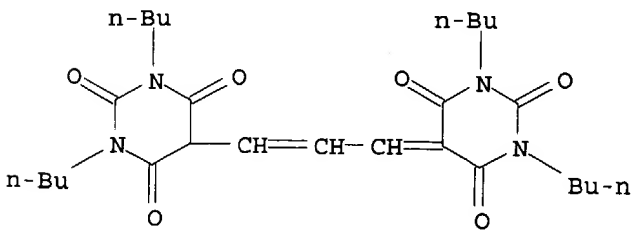
IT **47623-98-3**
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(DiSBAC2(3); method for identifying substances which modulate activity of hyperpolarization-activated cation channels)
RN 47623-98-3 HCAPLUS
CN 4,6(1H,5H)-Pyrimidinedione, 5-[3-(1,3-diethylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]-1,3-diethyldihydro-2-thioxo- (9CI) (CA INDEX NAME)



IT **70363-83-6**, [DiBAC4(3)]
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(method for identifying substances which modulate activity of hyperpolarization-activated cation channels)
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



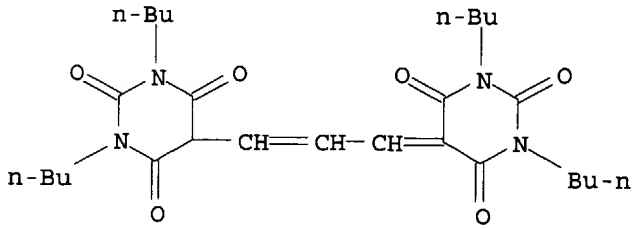
L53 ANSWER 13 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:572249 HCAPLUS
DN 135:177453
TI A microfluidic device for measuring cellular **membrane potential**
AU Farinas, Javier; Chow, Andrea W.; Wada, H. Garrett
CS Cell Biology & Microfluidics Groups, Caliper Technologies Corporation, Mountain View, CA, 94043, USA
SO Analytical Biochemistry (**2001**), 295(2), 138-142
CODEN: ANBCA2; ISSN: 0003-2697
PB Academic Press
DT Journal
LA English
AB Recent developments in microfluidics have enabled the design of a lab-on-a-chip system capable of measuring cellular **membrane potential.** The chip accesses liquid samples sequentially by sipping from a microplate through a capillary, mixes the samples with cells flowing through a microchannel, contacts the cells with potential-sensitive dyes, and reads out cellular responses using fluorescence detection. The rate of cellular uptake of membrane-permeable, ionic fluorophores by THP-1 cells was found to depend strongly on **membrane potential.** The ratio of the fluorescence of the anionic dye DiBAC4(3) and the cationic dye Syto 62 taken up by cells was found to double for every 33 mV change in **membrane potential.** The utility of this approach was demonstrated by assaying ion channel activity in human T lymphocytes. Because of the high sensitivity, low cellular and reagent consumption, and high data quality obtained with the microfluidic device, the lab-on-a-chip system should be widely applicable in high-throughput screening and functional genomics studies. (c) 2001 Academic Press.
IT **70363-83-6**, DiBAC4(3)
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(microfluidic device for measuring cellular **membrane potential**)
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L53 ANSWER 14 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:552386 HCAPLUS
DN 135:326908
TI Usefulness and limitation of DiBAC4(3), a voltage-sensitive fluorescent dye, for the measurement of **membrane potentials** regulated by recombinant large conductance Ca2+-activated K+ channels in HEK293 cells
AU Yamada, Aki; Gaja, Norikazu; Ohya, Susumu; Muraki, Katsuhiko; Narita, Hiroshi; Ohwada, Tomohiko; Imaizumi, Yuji
CS Department of Molecular and Cellular Pharmacology Graduate School of Pharmaceutical Sciences, Nagoya City University, Nagoya, 467-8603, Japan
SO Japanese Journal of Pharmacology (**2001**), 86(3), 342-350
CODEN: JJPAAZ; ISSN: 0021-5198
PB Japanese Pharmacological Society
DT Journal
LA English
AB The usefulness of bis-(1,3-dibutylbarbituric acid)-trimethine oxonol (DiBAC4(3)), a voltage-sensitive fluorescent dye, for the measurement of **membrane potentials** (MPs) was evaluated in HEK293 cells, where α or α plus β1 subunits of large conductance Ca2+-activated K+ (BK) channels were expressed (HEKBKα and HEKBKαβ). The fluorescent intensity of DiBAC4(3) was measured at various potentials under voltage-clamp for calibration to estimate the absolute MP semi-quant. The resting MPs measured with DiBAC4(3) were roughly comparable to those recorded with a microelectrode; the MP in HEKBKαβ was 10-20 mV more neg. than that in native HEK. In HEKBKα, the membrane hyperpolarization induced by 10 μM Evans blue, a BK channel opener, was detected with DiBAC4(3). NS-1619, another BK channel opener, induced gradual but substantial change in F/FK even in native HEK, while the BK channel opening effect was detected. Oscillatory membrane hyperpolarization was induced in HEKBKαβ by application of 10 μM acetylcholine via increase in intracellular Ca2+ concentration The oscillatory hyperpolarization was, however, detected only as a slow hyperpolarization with DiBAC4(3). It can be concluded that relatively slow effects of BK channel modulators can be semi-quant. measured by use of DiBAC4(3) in HEKBK, while the limited temporal resolution and possible artifacts should be taken into account.
IT **70363-83-6**, Bis-(1,3-dibutylbarbituric acid)-trimethine oxonol
RL: BUU (Biological use, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(usefulness and limitation of DiBAC4(3), a voltage-sensitive fluorescent dye, for measurement of **membrane potentials** in the assay of potassium channel modulators)
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



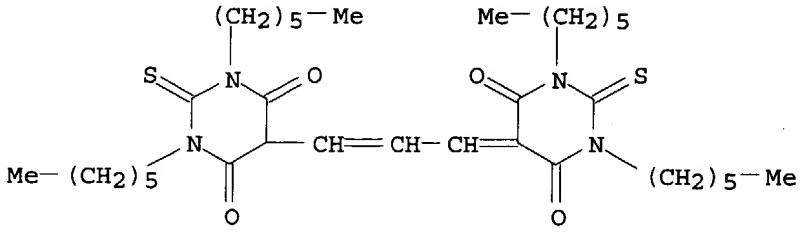
RE.CNT 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

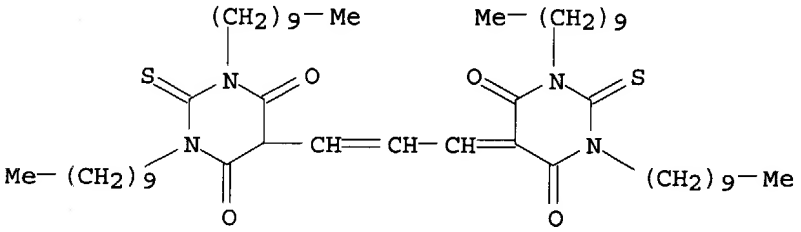
L53 ANSWER 15 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:435043 HCAPLUS
DN 135:43136
TI Detection of transmembrane potentials by fluorescent resonance energy transfer (FRET) between a hydrophobic fluorescent ion and a chromophore
IN Tsien, Roger Y.; Gonzalez, Jesus E. III
PA The Regents of the University of California, USA
SO PCT Int. Appl., 154 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001042211	A2	20010614	WO 2000-US33739	20001212 <--
	WO 2001042211	A3	20020117		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 2002137201	A1	20020926	US 1999-378534	19990820 <--
	US 6596522	B2	20030722		
	JP 2003518246	T2	20030603	JP 2001-543512	20001212 <--
PRAI	US 1999-459956	A	19991213 <--		
	US 1997-765860	A1	19970508 <--		
	WO 2000-US33739	W	20001212 <--		

OS MARPAT 135:43136
AB Methods and compns. are provided for detecting changes in **membrane potential** in membranes biol. systems. In one aspect, the method comprises: (a) providing a living cell with a first reagent comprising a charged hydrophobic mol. which is typically a fluorescence resonance energy transfer (FRET) acceptor or donor, or is a quencher and is capable of redistributing within the membrane of a biol. membrane in response to changes in the potential across the membrane; (b) providing the cell with a second reagent that can label the first face or the second face of a biol. membrane within the cell; (c) detecting light emission from the first reagent or the second reagent. One aspect of this method involves monitoring **membrane potential** changes in subcellular organelle membranes in a living cell. Another aspect of the invention is the use of certain embodiments of the method for the screening of test chems. for activity to modulate the activity of a target ion channel. Another aspect of the present invention is a transgenic organism comprising a first reagent that comprises a charged hydrophobic fluorescent mol., and a second reagent comprising a bioluminescent or naturally fluorescent protein.
IT **169211-44-3 169211-45-4**
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(detection of transmembrane potentials by fluorescent resonance energy transfer (FRET) between a hydrophobic fluorescent ion and a chromophore)
RN 169211-44-3 HCAPLUS
CN 4,6(1H,5H)-Pyrimidinedione, 5-[3-(1,3-dihexylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]-1,3-dihexyldihydro-2-thioxo- (9CI) (CA INDEX NAME)

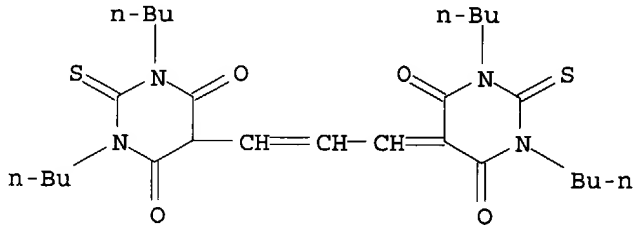


RN 169211-45-4 HCAPLUS
CN 4,6(1H,5H)-Pyrimidinedione, 1,3-didecyl-5-[3-(1,3-didecylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]dihydro-2-thioxo- (9CI) (CA INDEX NAME)

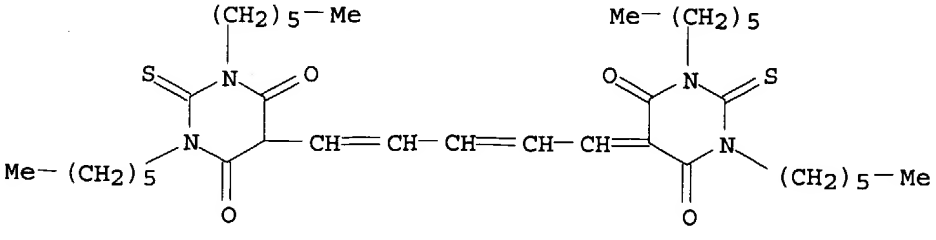


IT **155703-07-4P 186776-35-2P 344571-19-3P**
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(detection of transmembrane potentials by fluorescent resonance energy transfer (FRET) between a hydrophobic fluorescent ion and a chromophore)

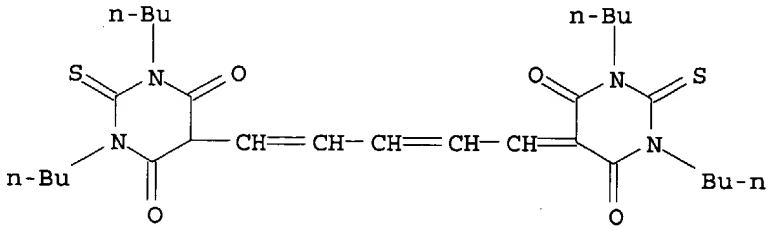
RN 155703-07-4 HCAPLUS
CN 4,6(1H,5H)-Pyrimidinedione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]dihydro-2-thioxo- (9CI) (CA INDEX NAME)



RN 186776-35-2 HCAPLUS
CN 4,6(1H,5H)-Pyrimidinedione, 5-[5-(1,3-dihexylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2,4-pentadienylidene]-1,3-dihexyldihydro-2-thioxo- (9CI) (CA INDEX NAME)



RN 344571-19-3 HCAPLUS
CN 4,6(1H,5H)-Pyrimidinedione, 1,3-dibutyl-5-[5-(1,3-dibutylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2,4-pentadienylidene]dihydro-2-thioxo- (9CI) (CA INDEX NAME)

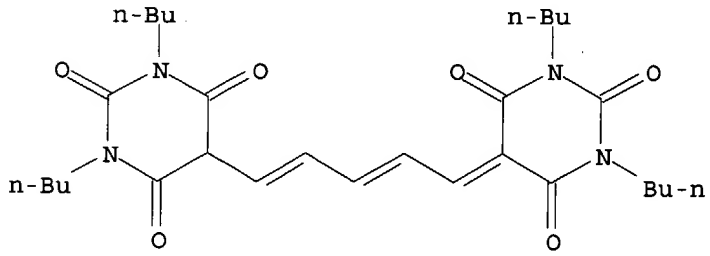


L53 ANSWER 16 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:284081 HCAPLUS
DN 134:307569
TI Microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage
IN Farinas, Javier Anibal; Wada, H. Garrett
PA Caliper Technologies Corp., USA
SO PCT Int. Appl., 70 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

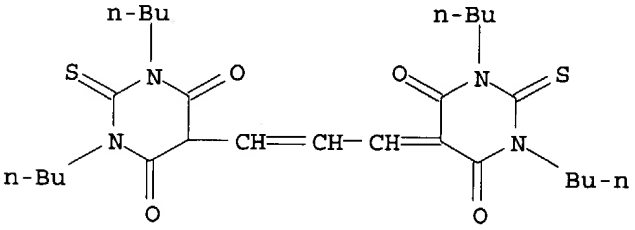
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001027253	A1	20010419	WO 2000-US27659	20001006 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	EP 1222257	A1	20020717	EP 2000-975224	20001006 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL				
	JP 2003511682	T2	20030325	JP 2001-530458	20001006 <--
	US 6537771	B1	20030325	US 2000-684313	20001006 <--
	US 2004009545	A1	20040115	US 2003-349396	20030121 <--
	US 2004048239	A1	20040311	US 2003-655697	20030905 <--
PRAI	US 1999-158323P	P	19991008 <--		
	US 1999-168792P	P	19991202 <--		
	US 2000-229951P	P	20000901 <--		
	US 2000-684313	A3	20001006 <--		
	WO 2000-US27659	W	20001006 <--		
	US 2003-349396	A1	20030121		

AB Transmembrane potential measurement methods using cationic dyes, and anionic dyes are provided. Compns. of the cationic and anionic dyes and microfluidic systems which include the dyes and membranes are provided in conjunction with processing elements for transmembrane potential measurements. The time course of SYTO 62 (a cyclic-substituted unsym. cyanine dye) uptake by THP-1 cells depended on transmembrane potential. The changes in the cell transmembrane potential were detected in a microfluidic processor.

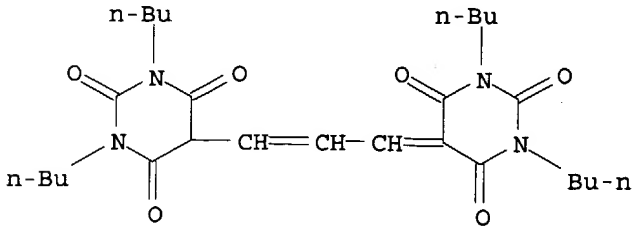
IT **63560-89-4**, DiBAC4(5)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(DiBAC4(5); microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
RN 63560-89-4 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[5-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2,4-pentadienylidene]- (9CI) (CA INDEX NAME)



IT **155703-07-4**, DiSBAC2(3)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(DiSBAC2(3); microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
RN 155703-07-4 HCAPLUS
CN 4,6(1H,5H)-Pyrimidinedione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]dihydro-2-thioxo- (9CI) (CA INDEX NAME)



IT **70363-83-6**, DiBAC4(3)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(microfluidic devices and use of Nernstein voltage sensitive dyes in measuring transmembrane voltage)
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L53 ANSWER 17 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN

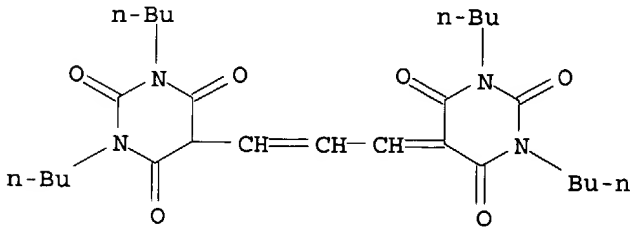
AN 2000:764993 HCAPLUS
DN 133:330852
TI Cytotoxicity test method by measuring membrane electric potential
IN Murakami, Toru
PA NEC Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 23 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000300290	A2	20001031	JP 1999-115059	19990422 <--
	JP 3123541	B2	20010115		
PRAI	JP 1999-115059		19990422 <--		

AB A cytotoxicity test method is provided for quantitating the toxicity of a test chemical substance with a high accuracy by accurately measuring the cell activity of one cultured cell at a time. The method consists of a process for contacting a culture medium containing the test chemical substance with a cell (e.g., liver cell, vascular endothelial cell, fibroblast, epidermal cell, epithelial cell, mammary gland cell, muscle cell, nerve cell, cartilage cell, bone cell, lymphocyte) adhered on the surface of a fluorescent-labeled cell-adhesive protein membrane pattern (e.g., collagen, fibronectin, laminin, vitronectin) installed on the baseplate, and a process for judging the cytotoxicity of the substance by measuring the membrane elec. potential using the membrane elec. potential sensitive fluorescent dye (e.g, cyanine dye, styryl dye, oxonol dye) upon contacting with the culture medium. The cytotoxicity of antimony chloride, cadmium chloride, chromium chloride, copper chloride, lead acetate, mercury chloride, dichloromethane, trichloromethane, tetrachloromethane, dichloroethene, trichloroethene, tetrachloroethene, monochlorobenzene, dichlorobenzene, and trichlorobenzene was quantitated using this method.

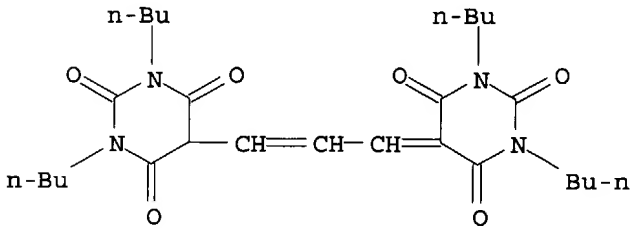
IT **70363-83-6**, Bis-(1,3-dibutylbarbituricacid)trimethineoxonol
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(cytotoxicity test method by measuring membrane elec. potential)

RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



L53 ANSWER 18 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:308041 HCAPLUS
DN 133:320874
TI Flow cytometric analysis of cell membrane events induced by interferon-alpha
AU Balint, E.; Veres, A.; Ocsovszki, I.; Beladi, I.; Varkonyi, Z.
CS Department of Optics and Quantum Electronics, JATE University, Szeged, H-6720, Hung.
SO Laser Physics (**2000**), 10(2), 509-512
CODEN: LAPHEJ; ISSN: 1054-660X
PB MAIK Nauka/Interperiodica Publishing

DT Journal
LA English
AB Laser-based flow cytometer permits prompt exptl. monitoring of fluctuations in the mol. status of cell surface membranes and can "report" the occurrence of early signal transduction events of interferons. The interferons are important regulatory mols., capable of affecting a number of cell functions in addition to the much studied proliferation of the variety of cell types, inhibition of viral replication and growth. Clin. there is increasing importance of anticancer and antiviral activity of interferon-alpha (IFN). IFN acts primarily by interaction with membrane receptors during signal transduction. The aim of this study was to pursue the importance of the cell membrane changes in the signal transduction of IFN from receptor binding to biol. effect. Studies were therefore undertaken to measure the absolute **membrane potential** of IFN treated cells. The absolute **membrane potential** of human cells was quantitated by flow cytometry using a voltage-sensitive oxonol dye. The relationship of plasma membrane biophys. properties to the expression of IFN effects was investigated on different types of model cells (U937 monocytes and Daudi lymphoblast). Our studies have suggested changes in the plasma membrane environment after IFN treatment, including changes in the ion flux, **membrane potential**, alteration of microviscosity etc.
IT **70363-83-6**, Dibac4(3)
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(flow cytometric anal. of cell membrane events induced by interferon-alpha)
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

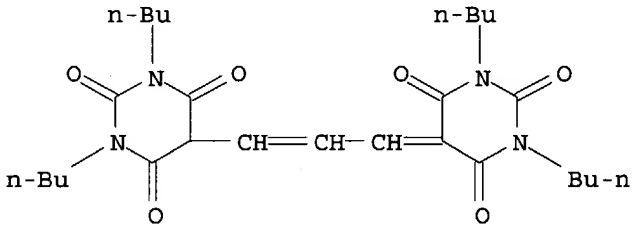
L53 ANSWER 19 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:517919 HCAPLUS
DN 132:97691
TI Effect of u.v. light irradiation, starvation and heat on Escherichia coli β-D-galactosidase activity and other potential viability parameters
AU Fiksdal, L.; Tryland, I.
CS Department of Hydraulic and Environmental Engineering, Norwegian University of Science and Technology, Trondheim, N-7034, Norway
SO Journal of Applied Microbiology (**1999**), 87(1), 62-71
CODEN: JAMIFK; ISSN: 1364-5072
PB Blackwell Science Ltd.
DT Journal
LA English
AB The effect of UV light irradiation and two other types of stress (heat and starvation) on cellular functions of Escherichia coli have been studied to evaluate whether assays measuring cellular functions can be used to measure viable cell nos. in assessment of microbiol. water quality and efficiency of disinfection processes. The severe reduction of the culturable

cell number (cfu) and the direct viable count (DVC) after exposure to moderate UV light doses (48 m Ws cm-2), was not reflected by the dehydrogenase activity (5-cyano-2,3-ditolyl tetrazolium chloride (CTC)-pos. cells), the membrane integrity (SYTOX Green-neg. cells), the **membrane potential** (bis-(1,3-dibutylbarbituric acid) trimethine oxonol (DiBAC4 [3]) (OXONOL)-neg. cells), and the β-D-galactosidase activity. All parameters were affected by high UV light doses. Cellular activities (CTC, SYTOX, OXONOL, β-D-galactosidase activity) were intact in nonculturable cells with presumably severe damage to DNA, and the activities seemed not to be appropriate for detection of viable E. coli after UV light irradiation Heating for 20-30 min at 63° was required to cause a severe loss of the β-D-galactosidase activity and the nos. of CTC-pos., SYTOX Green-neg. or OXONOL-neg. cells. A large portion (≥38%) of preirradiated (190 mWs cm-2) cells maintained their ability to reduce CTC and exclude SYTOX Green and OXONOL after 51 d of starvation (dark, 7°) in phosphate-buffered saline.

IT **70363-83-6**, Bis(1,3-dibutylbarbituric acid) trimethine oxonol
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(Escherichia coli viability parameters response to stresses in relation to assessment of microbiol. water quality and efficiency of disinfection processes)

RN 70363-83-6 HCAPLUS

CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



RE.CNT 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

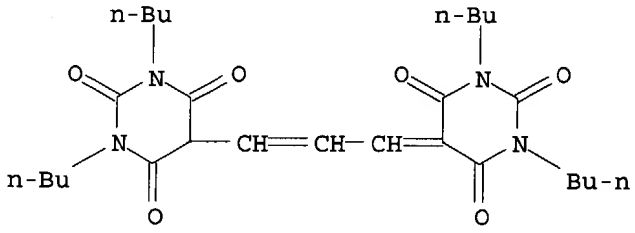
L53 ANSWER 20 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:302996 HCAPLUS
DN 131:99460
TI Assessment of the effect of amphotericin B on the vitality of Candida albicans
AU Liao, Robert S.; Rennie, Robert P.; Talbot, James A.
CS Department of Medical Microbiology and Immunology, Walter MacKenzie Centre, University of Alberta, Edmonton, AB, T6G 2J2, Can.
SO Antimicrobial Agents and Chemotherapy (**1999**), 43(5), 1034-1041
CODEN: AMACCQ; ISSN: 0066-4804
PB American Society for Microbiology
DT Journal
LA English
AB The processes involved in cell death are complex, and individual techniques measure specific fractions of the total population. The interaction of Candida albicans with amphotericin B was measured with fluorescent probes with different cellular affinities. These were used to provide qual. and quant. information of physiol. parameters which contribute to fungal cell viability. SYBR Green I and 5,(6)-carboxyfluorescein were used to assess membrane integrity, and bis(1,3-dibutylbarbituric acid)trimethine oxonol [DiBAC4(3)], and 3,3-dihexyloxacarbocyanine iodide [DiOC6(3)] were used to evaluate

alterations in **membrane potential.** The fluorescent indicators were compared with replication competency, the conventional indicator of viability. By using these tools, the evaluation of the response of C. albicans to amphotericin B time-kill curves delineated four categories which may represent a continuum between alive and dead. The data showed that replication competency (CFU per mL) as determined by conventional antifungal susceptibility techniques provided only an estimate of inhibition. Interpretation of fluorescent staining characteristics indicated that C. albicans cells which were replication incompetent after exposure to greater than 0.5 μg of amphotericin B per mL still maintained degrees of physiol. function.

IT **70363-83-6**, Dibac4(3)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(assessment of the effect of amphotericin B on the vitality of Candida albicans)

RN 70363-83-6 HCAPLUS

CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



RE.CNT 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

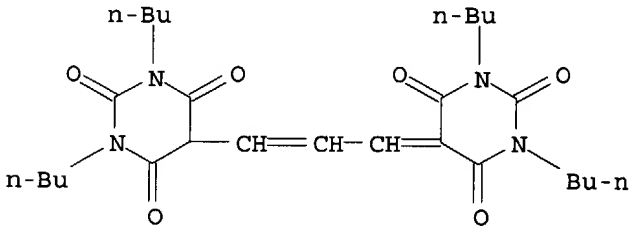
L53 ANSWER 21 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:227340 HCAPLUS
DN 131:41257
TI Phospholipid-subclass-specific partitioning of lipophilic ions in membrane-water systems
AU Zeng, Youchun; Han, Xianlin; Gross, Richard W.
CS Division of Bioorganic Chemistry and Molecular Pharmacology, Department of Internal Medicine, Washington University School of Medicine, St. Louis, MO, 63110, USA
SO Biochemical Journal (**1999**), 338(3), 651-658
CODEN: BIJOAK; ISSN: 0264-6021
PB Portland Press Ltd.
DT Journal
LA English
AB Herein, we systematically investigate phospholipid-subclass-specific alterations in the partitioning of both cationic and anionic amphiphiles to identify the importance of ester, ether and vinyl ether linkages at the sn-1 position of phospholipids in the partitioning of charged amphiphiles. The results demonstrated that the membrane-water partition coefficient of a proto-typic cationic amphiphile (i.e. 3,3'-dipropylthiadicarbocyanine iodide) was approx. 2.5 times higher in membranes comprised of plasmenylcholine in comparison with membranes comprised of either phosphatidylcholine or plasmanylcholine. In striking contrast, the membrane-water partition coefficient of a prototypic anionic amphiphile [i.e. bis-(1,3-dibutylbarbituric acid)trimethine oxonol] in membranes comprised of plasmenyl-choline was ≈ 2.5 times lower than that manifest in membranes comprised of phosphatidylcholine or plasmanylcholine. Utilizing these exptl. determined partition coeffs., the relative membrane dipole potential of membranes comprised of plasmenylcholine was calculated and found to be ≈ 25 mV lower than in membranes comprised of

phosphatidylcholine or plasmanylcholine. This lower membrane dipole potential in membranes comprised of plasmenylcholine is equivalent to the **membrane potential** induced by incorporation of ≈ 25 mol% of anionic phospholipids in membranes comprised of phosphatidylcholine. Collectively, these results demonstrate that phospholipid-subclass-specific differences in the membrane dipole potential contribute to alterations in the partitioning of lipophilic ions in membrane bilayers comprised of distinct phospholipid subclasses. Moreover, they suggest that these physicochem. differences can be exploited to facilitate the targeting of charged lipophilic drugs to specific cells and subcellular membrane compartments.

IT **70363-83-6**, Bis-(1,3-dibutylbarbituric acid)trimethine oxonol
RL: BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PROC (Process)
(phospholipid-subclass-specific partitioning of lipophilic ions in membrane-water systems)

RN 70363-83-6 HCAPLUS

CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



RE.CNT 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L53 ANSWER 22 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1999:198115 HCAPLUS

DN 131:16008

TI Antifungal susceptibility testing of Candida species by flow cytometry

AU Lee, Weegyo; Kwak, Yunsik

CS Department of Laboratory Medicine, Ajou University School of Medicine, Suwon, 442-749, S. Korea

SO Journal of Korean Medical Science (**1999**), 14(1), 21-26
CODEN: JKMSEH; ISSN: 1011-8934

PB Korean Academy of Medical Science

DT Journal

LA English

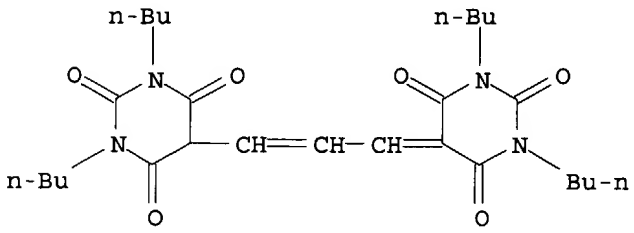
AB The feasibility of flow cytometric antifungal susceptibility testing has been studied using the fluorescent anionic **membrane potential** probe, bis-(1,3-dibutylbarbituric acid) trimethine oxonol [DiBAC4(3)]. The in vitro antifungal susceptibility testing of amphotericin B was performed on 8 Candida isolates from clin. specimens and 2 ATCC strains by flow cytometry with the results compared to those of the National Committee of Clin. Laboratory Stds. (NCCLS) M27-T, broth macrodilution method. The flow cytometric method is based on an increase of fluorescence given out by DiBAC4(3) in fungi when they are killed by antifungal agents. Min. inhibitory concentration (MIC) of amphotericin B ranged from 0.25 to 1 μg/mL. All results agreed within ±2 dilution between the flow cytometric method and the M27-T method. MIC with ATCC strains were within recommended ranges of M27-T. The new flow cytometric method revealed a clear and distinct reproducible test end point. A four hr of incubation was sufficient for the test. In conclusion, flow cytometry using DiBAC4(3) is a rapid and accurate in vitro antifungal susceptibility

testing method.

IT **70363-83-6**, Bis-(1,3-dibutylbarbituric acid) trimethine oxonol
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(antifungal susceptibility testing of Candida species by flow cytometry)

RN 70363-83-6 HCAPLUS

CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



RE.CNT 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L53 ANSWER 23 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1999:186934 HCAPLUS

DN 131:16301

TI Fluorescence monitoring of antibiotic-induced bacterial damage using flow cytometry

AU Suller, M. T. E.; Lloyd, D.

CS School of Pure and Applied Biology, University of Wales at Cardiff, Cardiff, CF1 3TL, UK

SO Cytometry (**1999**), 35(3), 235-241
CODEN: CYTODQ; ISSN: 0196-4763

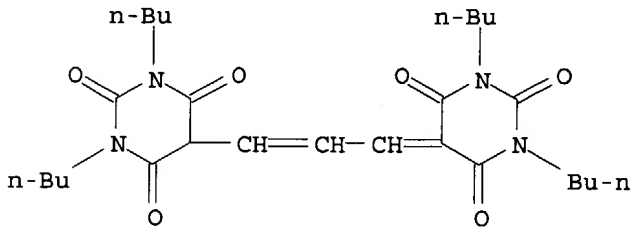
PB Wiley-Liss, Inc.

DT Journal

LA English

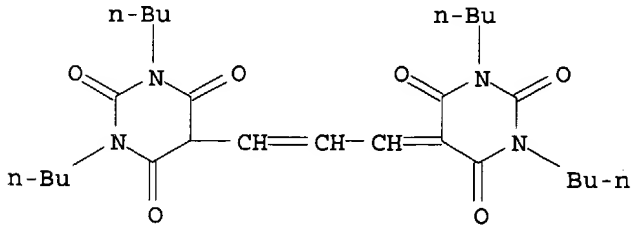
AB Conventional techniques used to assess bactericidal activities of antibodies are time-consuming; flow cytometry has been used as a rapid alternative. In this study, the **membrane potential** -sensitive fluorescent probes bis-(1,3-dibutylbarbituric acid) trimethine oxonol (DiBAC4(3)) and Sytox Green, the redox dye cyano-2,3-ditolyl tetrazolium chloride (CTC), and the Baclite viability test kit were used to assess the effects of ceftazidime, ampicillin, and vancomycin on clin. isolates of Pseudomonas aeruginosa, Escherichia coli, and Staphylococcus aureus, resp. Bacterial cultures were grown to early exponential phase, at which point the antibiotics were added at their breakpoint values, and incubation was allowed to continue. At timed intervals, samples were stained and flow cytometric anal. was performed on a Skatron Argus 100 arc-lamp based dual-parameter flow cytometer. All the dyes successfully identified antibiotic-induced damage in the three strains, although different fluorescence responses between the dyes were observed DiBAC4(3) and Sytox Green overestimated nos. of nonviable bacteria relative to loss of viability as judged by plate counts. CTC, a measure of respiratory activity, revealed antibiotic-induced population heterogeneity illustrated by the development of several subpopulations. The "live" component of the viability kit identified two populations corresponding to viable and nonviable organisms, whereas the "dead" component only revealed single populations, the fluorescence intensity of which increased with antibiotic exposure. Flow cytometry provides a rapid and sensitive technique for the evaluation of the antibacterial activities of antibiotics. The use of a range of fluorophores specific for different cellular characteristics may be beneficial, bearing in mind the different fluorescence responses observed among the dyes used here.

IT **70363-83-6**, DiBAC4(3)
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(fluorescence monitoring of antibiotic-induced bacterial damage using flow cytometry)
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



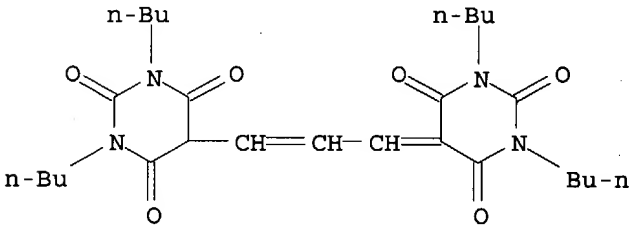
RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L53 ANSWER 24 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:410240 HCAPLUS
DN 129:199964
TI Flow cytometric **membrane potential** measurements
AU Damjanovich, Sandor; Pieri, Carlo; Bene, Laszlo; Jenei, Attila; Gaspar, Rezso, Jr.
CS Department of Biophysics, University Medical School Debrecen, Debrecen, 4012, Hung.
SO Signal Transduction - Single Cell Techniques (**1998**), 348-357.
Editor(s): Van Duijn, Bert; Wiltink, Anneke. Publisher: Springer, Berlin, Germany.
CODEN: 66IEAY
DT Conference
LA English
AB An overview and protocol are given of the use of fluorescent dyes in the flow cytometric determination of **membrane potential.** Advantages and disadvantages of DiBaC4(3) are discussed. An evaluation of FACS (fluorescence-activated cell sorting) anal. of **membrane potentials** is also made.
IT **70363-83-6**, DiBaC4(3)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(flow cytometric **membrane potential** measurements)
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L53 ANSWER 25 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:374597 HCAPLUS
DN 129:158646
TI Flow cytometric detection of fluorescent redistributional dyes for measurement of cell transmembrane potential
AU Tanner, Michael K.; Wellhausen, Samuel R.
CS Center for Vaccine Development, University of Maryland, Baltimore, MD, USA
SO Methods in Molecular Biology (Totowa, New Jersey) (**1998**), 91(Flow Cytometry Protocols), 85-95
CODEN: MMBIED; ISSN: 1064-3745
PB Humana Press Inc.
DT Journal
LA English
AB Methods are described for using cyanine and oxonol dyes to measure transmembrane potential in human peripheral mononuclear cells. Protocols are presented for cell preparation, usage of carbocyanine dye DIOC6(3) and the oxonol dye di-BA-C4.
IT **70363-83-6**
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(flow cytometric detection of fluorescent redistributional dyes for measurement of cell transmembrane potential)
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

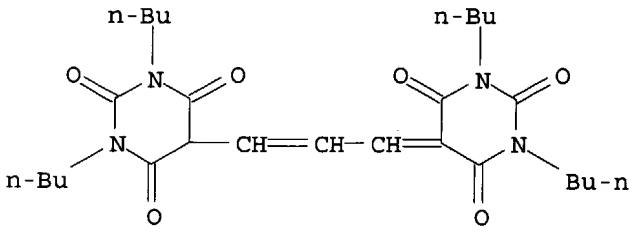
L53 ANSWER 26 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1997:597388 HCAPLUS
DN 127:290139
TI Rapid assessment of antibiotic effects on Escherichia coli by bis-(1,3-dibutylbarbituric acid) trimethine oxonol and flow cytometry
AU Jepras, R. I.; Paul, F. E.; Pearson, S. C.; Wilkinson, M. J.
CS SmithKline Beecham Pharmaceuticals, New Frontiers Science Park, Essex, CM19 5AW, UK
SO Antimicrobial Agents and Chemotherapy (**1997**), 41(9), 2001-2005
CODEN: AMACCQ; ISSN: 0066-4804
PB American Society for Microbiology
DT Journal
LA English
AB The effects of selected antibiotics on Escherichia coli were studied by flow cytometry with the fluorescent anionic **membrane potential** probe bis-(1,3-dibutylbarbituric acid) trimethine oxonol [DiBAC4(3)]. The actions of azithromycin, cefuroxime, and ciprofloxacin at five times the MIC on E. coli were compared by the traditional CFU assay and flow cytometry. Changes in viable counts of bacteria determined with DiBAC4(3) and by flow cytometry following treatment with the antibiotics showed trends similar to those found by the CFU assays. However, viable counts determined by flow cytometry following antibiotic treatment were 1 to 2 logs higher than those determined by the corresponding CFU assays. All the results obtained by flow cytometry were provided within 10 min after

sampling, whereas the conventional CFU assay results took at least 18 h. The results indicated that flow cytometry is a sensitive anal. technique that can rapidly monitor the physiol. changes of individual microorganisms following antibiotic action and can provide information on the mode of action of a drug. The **membrane potential** probe DiBAC4(3) provides a robust flow cytometric indicator for bacterial cell viability.

IT **70363-83-6**, DiBAC4(3)
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(rapid assessment of antibiotic effects on Escherichia coli by bis-(1,3-dibutylbarbituric acid) trimethine oxonol and flow cytometry)

RN 70363-83-6 HCAPLUS

CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



L53 ANSWER 27 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1997:504142 HCAPLUS

DN 127:202491

TI A flow cytometric study of antibiotic-induced damage and evaluation as a rapid antibiotic susceptibility test for methicillin-resistant Staphylococcus aureus

AU Suller, M. T. E.; Stark, J. M.; Lloyd, D.

CS School of Pure and Applied Biology, University of Wales College of Cardiff, Cardiff, CF1 3TL, UK

SO Journal of Antimicrobial Chemotherapy (**1997**), 40(1), 77-83
CODEN: JACHDX; ISSN: 0305-7453

PB Oxford University Press

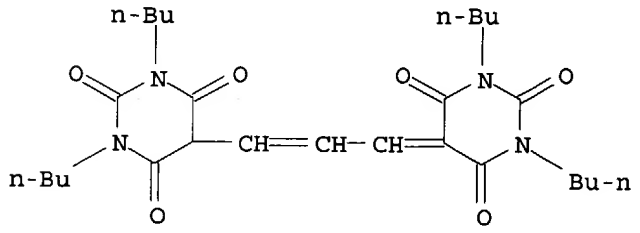
DT Journal

LA English

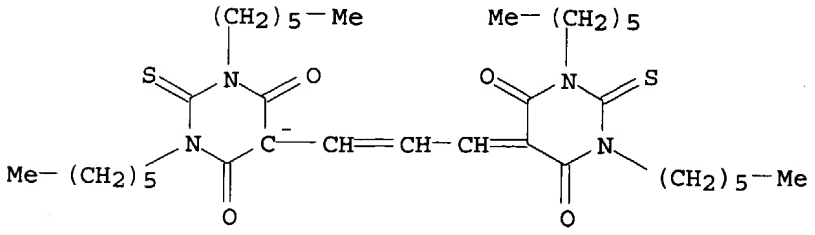
AB Flow cytometry using the anionic **membrane potential** -sensitive fluorescent probe, bis-(1,3-dibutylbarbituric acid) trimethine oxonol (DiBAC4(3)), enabled assessment of antibiotic-induced membrane perturbation in 5 clin. isolates of methicillin-resistant Staphylococcus aureus (MRSA) and two antibiotic-sensitive reference strains, NCTC 6571 and 8325-4, after establishment of steady-state growth in liquid cultures inoculated from single colonies. Flow cytometric indications of the enhanced DiBAC4(3) uptake after treatment with vancomycin at 0.1, 1, 4 and 10 x MIC showed excellent comparison with viability losses quantified as cfu on solid agar in MRSA isolate QC. The antibiotic susceptibility patterns to benzylpenicillin, methicillin and vancomycin for all isolates used in this study could be determined in 2-4 h from an overnight plate culture. This technique thus provides a rapid and reproducible antibiotic sensitivity test which may be applicable in routine clin. practice.

IT **70363-83-6**
RL: BPR (Biological process); BSU (Biological study, unclassified); BUU (Biological use, unclassified); NUU (Other use, unclassified); BIOL (Biological study); PROC (Process); USES (Uses)
(flow cytometry of antibiotic-induced damage and evaluation as antibiotic susceptibility test for methicillin-resistant Staphylococcus aureus)

RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



L53 ANSWER 28 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1997:363686 HCAPLUS
DN 127:106180
TI Improved indicators of cell **membrane potential** that use fluorescence resonance energy transfer
AU Gonzalez, Jesus E.; Tsien, Roger Y.
CS Howard Hughes Medical Inst., Dep. Pharmacol., 310 Cellular Mol. Med. West, Univ. California, La Jolla, CA, 92093-0647, USA
SO Chemistry & Biology (**1997**), 4(4), 269-277
CODEN: CBOLE2; ISSN: 1074-5521
PB Current Biology
DT Journal
LA English
AB Fluorescence detection of cell **membrane potentials** is an important technique in neurobiol., cell physiol. and pharmaceutical screening, but traditional one-fluorophore indicators either respond too slowly or have limited sensitivity. Recently, we introduced two-component sensors based on the transfer of fluorescence resonance energy from fluorescent lectins bound on one side of the plasma membrane to highly fluorescent oxonol acceptors that electrophoresis from one face of the membrane to the other in response to **membrane potential** . We have found that fluorescent lectins can often be advantageously replaced in such sensors by fluorescently labeled phospholipids. A coumarin-labeled phosphatidylethanolamine donor and a bis(1,3-dihexyl-2-thiobarbiturate)trimethineoxonol acceptor gave the largest sensitivity of fluorescence ratio (>50% per 100 mV) ever reported. The response was also speeded several-fold by lengthening the mobile dye to the pentamethineoxonol analog, the <0.4 ms time constant of which was shorter than action potential durations. Photodynamic damage due to singlet oxygen was reducted by administering a natural carotenoid, astaxanthin. Voltage-sensitive fluorescence resonance energy transfer already gives record-setting performance on single cells and will continue to be rationally improvable.
IT **192382-54-0**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(improved indicators of cell **membrane potential** that use fluorescence resonance energy transfer)
RN 192382-54-0 HCAPLUS
CN 4,6(1H,5H)-Pyrimidinedione, 5-[3-(1,3-dihexylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]-1,3-dihexyldihydro-2-thioxo-, ion(1-) (9CI) (CA INDEX NAME)



L53 ANSWER 29 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1997:148854 HCAPLUS
DN 126:154814
TI Detection of transmembrane potentials by optical methods
IN Tsien, Roger Y.; Gonzalez, Jesus E., III
PA Regents of the University of California, USA; Tsien, Roger Y.; Gonzalez, Jesus, E. III
SO PCT Int. Appl., 112 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9641166	A2	19961219	WO 1996-US9652	19960606 <--
	WO 9641166	A3	19970515		
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	AU 9662643	A1	19961230	AU 1996-62643	19960606 <--
	AU 716130	B2	20000217		
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	EP 834074	B1	19991103		
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	US 2002137201	A1	20020926	US 1999-378534	19990820 <--
	US 6596522	B2	20030722		
	AU 9965287	A1	20000406	AU 1999-65287	19991216 <--
	AU 760738	B2	20030522		
	US 2002164577	A1	20021107	US 2001-967772	20010928 <--
	US 2003129670	A1	20030710	US 2002-334589	20021231 <--
	US 2003207248	A1	20031106	US 2002-335517	20021231 <--
	US 2004002123	A1	20040101	US 2002-334288	20021231 <--
PRAI	US 1995-481977	A	19950607 <--		
	EP 1996-921410	A3	19960606 <--		
	WO 1996-US9652	W	19960606 <--		
	US 1997-765860	A1	19970508 <--		
	US 1999-378534	A1	19990820 <--		

US 1999-459956 A1 19991213 <--
US 2001-967772 A1 20010928 <--

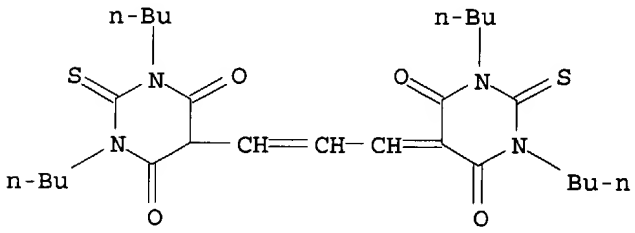
OS MARPAT 126:154814

AB Methods and compns. are provided for determining the potential of a membrane. In one aspect, the method comprises: (1) introducing a first reagent comprising a hydrophobic fluorescent ion capable of redistributing from a first face of the membrane to a second face of the membrane in response to changes in the potential of the membrane, as described by the Nernst equation; (2) introducing a second reagent which labels the first face or the second face of the membrane, which second reagent comprises a chromophore capable of undergoing energy transfer by either donating excited state energy to the fluorescent ion or accepting excited state energy from the fluorescent ion; (3) exposing the membrane to radiation; (4) measuring energy transfer between the fluorescent ion and the second reagent; and (5) relating the energy transfer to the **membrane potential.** Energy transfer is typically measured by fluorescence resonance energy transfer. In some embodiments the first and second reagents are bound together by a suitable linker. In one aspect, the method is used to identify compds. which modulate **membrane potentials** in biol. membranes.

IT **155703-07-4P 186776-35-2P**
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); NUU (Other use, unclassified); SPN (Synthetic preparation); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(transmembrane potential determination by fluorescence resonance energy transfer method)

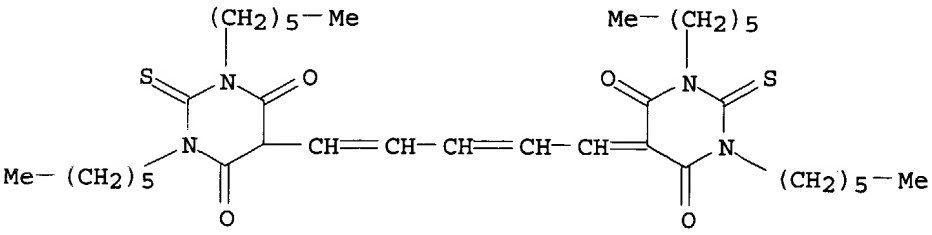
RN 155703-07-4 HCAPLUS

CN 4,6(1H,5H)-Pyrimidinedione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]dihydro-2-thioxo- (9CI) (CA INDEX NAME)



RN 186776-35-2 HCAPLUS

CN 4,6(1H,5H)-Pyrimidinedione, 5-[5-(1,3-dihexylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2,4-pentadienylidene]-1,3-dihexyldihydro-2-thioxo- (9CI) (CA INDEX NAME)

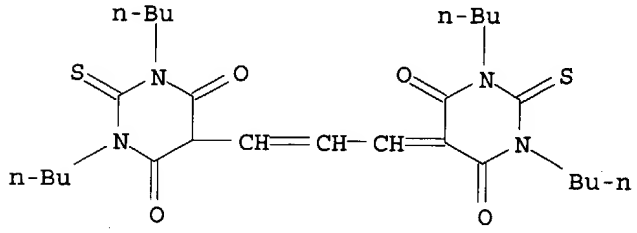


IT **169211-43-2P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(transmembrane potential determination by fluorescence resonance energy transfer method)

RN 169211-43-2 HCAPLUS
CN 4,6(1H,5H)-Pyrimidinedione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]dihydro-2-thioxo-, compd. with pyridine (1:1) (9CI) (CA INDEX NAME)

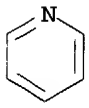
CM 1

CRN 155703-07-4
CMF C27 H40 N4 O4 S2

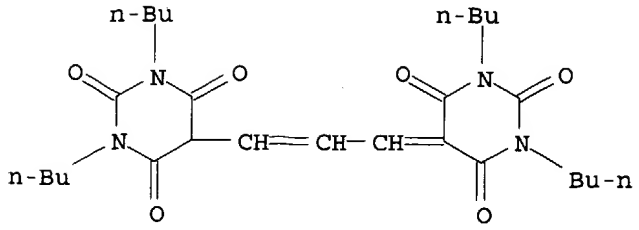


CM 2

CRN 110-86-1
CMF C5 H5 N

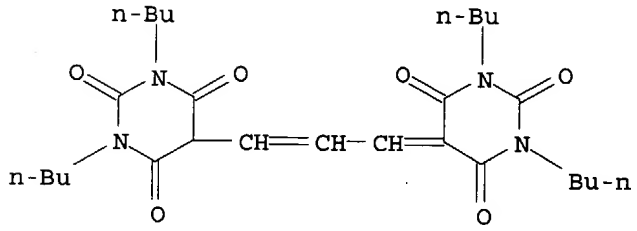


L53 ANSWER 30 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1997:138139 HCAPLUS
DN 126:222445
TI Detection of cell viability in cultures of hyperthermophiles
AU Beck, Petra; Huber, Robert
CS Lehrstuhl fuer Mikrobiologie, Universitaet Regensburg, Regensburg, 93053, Germany
SO FEMS Microbiology Letters (**1997**), 148(1), 11-14
CODEN: FMLED7; ISSN: 0378-1097
PB Elsevier
DT Journal
LA English
AB Fluorescent dyes were assessed with regard to their ability to discriminate between viable and non-viable cells of hyperthermophilic archaea and bacteria. Using bis-(1,3-dibutylbarbituric acid) trimethine oxonol (I), a **membrane potential**-sensitive probe, a safe and rapid discrimination of viable cells was possible by fluorescence microscopy. Single viable individuals, identified by I, were selectively isolated from mixts. of viable and dead cells by the use of a laser microscope ('optical tweezers') and grown in pure culture.
IT **70363-83-6**
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(detection of cell viability in cultures of hyperthermophiles)
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



L53 ANSWER 31 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1997:2770 HCAPLUS
DN 126:45186
TI Neuroendocrine γ-aminobutyric acid (GABA): functional differences in GABAA versus GABAB receptor inhibition of the melanotrope cell of Xenopus laevis
AU Buzzi, Marco; Bemelmans, Frank F. J.; Roubos, Eric W.; Jenks, Bruce G.
CS Department of CEllular Animal Physiology, University of Nijmegen, Nijmegen, Neth.
SO Endocrinology (**1997**), 138(1), 203-212
CODEN: ENDOAO; ISSN: 0013-7227
PB Endocrine Society
DT Journal
LA English
AB The melanotrope cell Xenopus laevis is innervated by nerve terminals that contain, among other transmitter substances, the neurotransmitter γ-aminobutyric acid (GABA). Postsynaptically the melanotrope cell possess both GABAA and GABAB receptors. Activation of either receptor type leads to an inhibition of a αMSH release from the cell. The present study concerns the functional significance of the existence of two types of GABA receptors on the melanotrope regarding two questions: (1) do the different receptor types have different effects on the melanotrope and (2) can the endogenous ligand GABA differentially activate these receptors Concerning the first question, the authors have tested the hypothesis that the GABAA receptor (a chloride ion channel) and the GABAB receptor (a G protein-coupled receptor neg. linked to adenylyl cyclase) may have differential effects on the sensitivity of the cell to stimulation by cAMP-dependent mechanisms. The authors show that treatments with either isoguvacine (GABAA agonist) or baclofen (GABAB agonist) inhibit intracellular Ca2+ oscillations and peptide secretion from melanotrope e cells. Treatments known to increase intracellular cAMP in the melanotrope (e.g. use of the peptide sauvagine or the cAMP analog 8-bromo-cAMP) completely overcame the inhibition induced by baclofen, but not that caused by isoguvacine. The authors conclude that GABAA and GABAB receptors have different effects on the Xenopus melanotrope cell by differentially affecting the sensitivity the cell shows to stimulation by cAMP-dependent mechanisms. Concerning possible differential activation of the receptor types, the authors found that the authors could use a **membrane potential** probe (from the bis-oxonol family) to differentiate between GABAA and GABAB receptor activation. Using this probe the authors showed that low GABA concns. (<10-7 M) give a response indicative of the GABABB receptor, whereas at high GABA concns. (<10-7 M), the GABAA receptor response predominates. The authors, therefore, conclude that GABA can differentially activate the two types of GABA receptors on the Xenopus melanotrope cell.
IT **70363-83-6**
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(functional differences in GABAA vs. GABAB receptor inhibition of the melanotrope cell of Xenopus laevis)
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-

2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



L53 ANSWER 32 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1996:404705 HCAPLUS
DN 125:49268
TI A high capacity screen for immunoregulants
IN Boltz, Robert C. Jr.
PA Boltz, Robert, C., Jr., USA
SO PCT Int. Appl., 28 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9610091	A1	19960404	WO 1995-US12316	19950925 <--

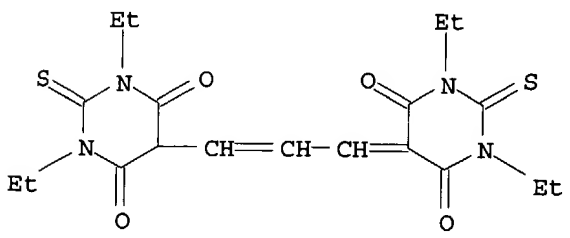
W: CA, JP, US
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

PRAI US 1994-314760 19940929 <--

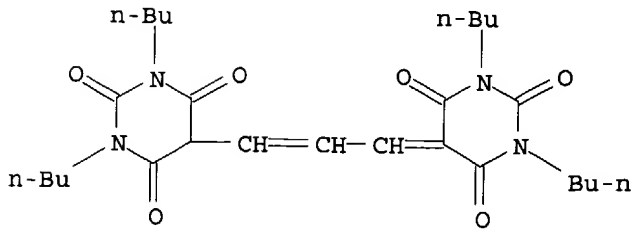
AB A process for screening for immunoregulant compds. that modulate T cell activation by blocking potassium channel Kv1.3 comprises measuring the effect of the immunoregulant compound on **membrane potential** by blocking potassium channel Kv1.3 is claimed. A method for analyzing compds. for activity as immunoregulants using a high capacity screening techniques.

IT **47623-98-3 70363-83-6**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**membrane potential** in screening for immunoregulants)

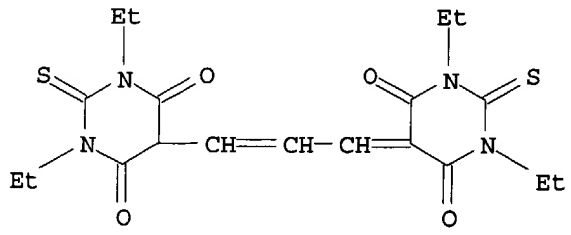
RN 47623-98-3 HCAPLUS
CN 4,6(1H,5H)-Pyrimidinedione, 5-[3-(1,3-diethylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]-1,3-diethyldihydro-2-thioxo- (9CI) (CA INDEX NAME)



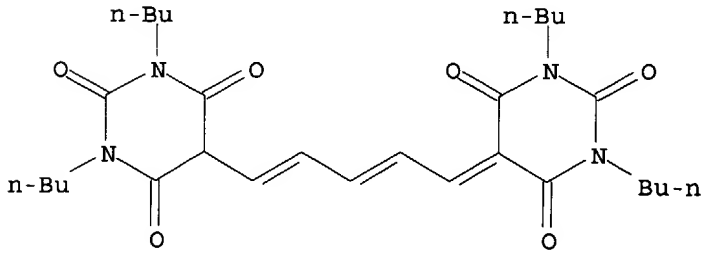
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



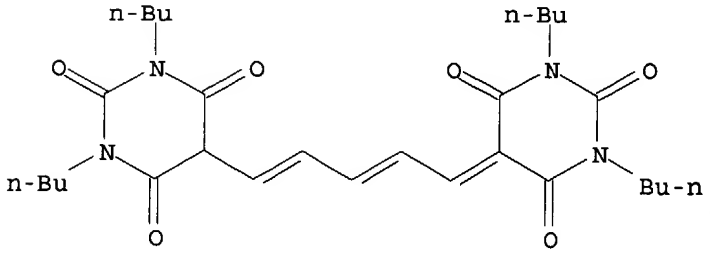
L53 ANSWER 33 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1995:979449 HCAPLUS
DN 124:81265
TI Use of a **membrane potential**-sensitive probe to assess biological expression of the cystic fibrosis transmembrane conductance regulator
AU Renier, Michela; Tamanini, Anna; Nicolis, Elena; Rolfini, Rossella; Imler, Jean-Luc; Pavirani, Andrea; Cabrini, Giulio
CS Laboratory Biochemistry, Cystic Fibrosis Center, Verona, Italy
SO Human Gene Therapy (**1995**), 6(10), 1275-83
CODEN: HGTHE3; ISSN: 1043-0342
PB Liebert
DT Journal
LA English
AB Cystic fibrosis is caused by defects in a chloride-transporting protein termed cystic fibrosis transmembrane conductance regulator (CFTR). This study presents an innovative procedure to evaluate expression of functional CFTR. The technique uses the potential-sensitive probe bis-(1,3-diethylthiobarbituric acid) trimethine oxonol or DiSBAC2(3), by single-cell fluorescence imaging. The DiSBAC2(3) method was first validated on the mouse mammary tumor cell line C127, stably expressing wild-type CFTR. Activation of protein kinase A by the cAMP-permeable analog 8-Br-cAMP induced cell membrane depolarization consistent with expression of wild-type CFTR. The DiSBAC2(3) method is quick, simple, and reproducible, and does not require invasive cell loading procedures. The system was then applied to the cell model of the human lung tumor cell line A549, in which exogenous CFTR was expressed by infecting with the replication-deficient recombinant adenovirus AdCFTR. DiSBAC2(3) was able to detect the fraction of cells in which the expression of CFTR protein was confirmed by immunocytochem. The DiSBAC2(3) probe was also used in human nasal respiratory cells cultured in vitro, in which it efficiently discriminated between endogenous CFTR in normal and CF cells. Functional evaluation of CFTR function by the described method can be a useful tool to detect the expression of the CF gene transferred by adenoviral vectors for use in gene therapy trials.
IT **47623-98-3**
RL: ARG (Analytical reagent use); NUU (Other use, unclassified); ANST (Analytical study); USES (Uses)
(**membrane potential**-sensitive probe to assess biol. expression of cystic fibrosis transmembrane conductance regulator)
RN 47623-98-3 HCAPLUS
CN 4,6(1H,5H)-Pyrimidinedione, 5-[3-(1,3-diethylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]-1,3-diethyldihydro-2-thioxo- (9CI) (CA INDEX NAME)



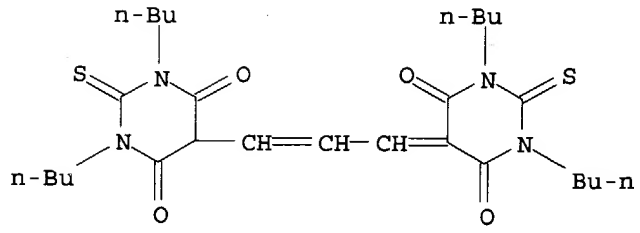
L53 ANSWER 34 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1995:902114 HCAPLUS
DN 124:26568
TI An oxonol dye is the most potent known inhibitor of band 3-mediated anion exchange
AU Knauf, Philip A.; Law, Foon-Yee; Hahn, Klaus
CS Dep. Biophys., Univ. Rochester Sch. Med., Rochester, NY, 14642, USA
SO American Journal of Physiology (**1995**), 269(4, Pt. 1), C1073-C1077
CODEN: AJPHAP; ISSN: 0002-9513
PB American Physiological Society
DT Journal
LA English
AB When cells are acutely exposed to the oxonol dye bis(1,3-dibutylbarbituric acid)pentamethine oxonol (diBA) at 0°, the concentration that gives half inhibition of Cl- exchange (IC50) is 0.146 μM initially, but the inhibition increases with time. These characteristics indicate that a rapid initial binding is followed by a slow conformational change that makes the binding tighter. If diBA is allowed to equilibrate with band 3, the IC50 is only 1.05 nM, making diBA a more potent inhibitor than DIDS, for which the IC50 under similar conditions is 31 nM (Janas, T. et al., 1989). Inhibition by diBA is very slowly reversible at 0° (t1/2 >50 h), but the effect is more readily reversible at higher temps. DiBA competes with 4,4'-dinitrostilbene-2,2'-disulfonate (DNDS) for inhibition, suggesting an external site of action. In contrast to DIDS and DNDS, however, increasing Cl- concns. do not decrease the inhibitory effect of diBA, indicating that the inhibition is not competitive. Thus diBA may be useful for investigating conformational changes during anion exchange and for stopping transport without preventing substrate binding. However, when diBA and other oxonols are used to sense **membrane potential**, they may have undesirable side effects on anion transport processes.
IT **63560-89-4**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(oxonol dye inhibition of band 3-mediated anion exchange in erythrocyte)
RN 63560-89-4 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[5-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2,4-pentadienylidene]- (9CI) (CA INDEX NAME)



L53 ANSWER 35 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1995:902113 HCAPLUS
DN 123:336003
TI Volume-activated chloride channels in HL-60 cells: potent inhibition by an oxonol dye
AU Arreola, Jorge; Hallows, Kenneth R.; Knauf, Philip A.
CS Dep. Dental Res., Univ. Rochester, Rochester, NY, 14642, USA
SO American Journal of Physiology (**1995**), 269(4, Pt. 1), C1063-C1072
CODEN: AJPHAP; ISSN: 0002-9513
PB American Physiological Society
DT Journal
LA English
AB When swollen in hypotonic media, HL-60 cells exhibit a regulatory volume decrease (RVD) response as a result of net losses of K+ and Cl-. This is primarily caused by a dramatic increase in Cl- permeability, which may reflect the opening of volume-sensitive channels. To test this hypothesis, the authors measured volume-activated Cl- currents in HL-60 cells using the patch-clamp technique. The whole cell Cl- conductance (in nS/pF at 100 mV) increased from 0.09 to 1.15 to 1.64 as the tonicity (in mosmol/kg H2O) of the external medium was decreased from 334 to 263 to 164, resp. Cl- currents showed no significant inactivation during 800-ms pulses. Current-voltage curves exhibited outward rectification and were identical at holding potentials of 0 or -50 mV, suggesting that the gating of the channels is voltage independent. The selectivity sequence, based on permeability ratios (PX/PCl) calculated from the shifts of the reversal potentials, was SCN- > I- ≈ NO3- > Br- > Cl- » gluconate. SITS (0.5 mM) inhibits HL-60 Cl- channels in a voltage-dependent manner, with .apprx.10-fold increased affinity at potentials greater than +40 mV. Voltage-dependent blockade by SITS indicates that the binding site is located near the outside, where it senses 20% of the **membrane potential.** These Cl- channels were also inhibited in a voltage-independent manner by the oxonol dye bis-(1,3-dibutylbarbituric acid)pentamethine oxonol [diBA-(5)-C4] with a concentration that gives half inhibition (IC50) of 1.8 μM at room temperature A similar apparent IC50 value (1.2 μM) was observed for net 36Cl- efflux into a Cl--free hypotonic medium at 21°. It seems likely, therefore, that the volume-activated Cl- channels are responsible for the net Cl- efflux during RVD. These Cl- channels have properties similar to the mini-Cl- channels described in lymphocytes and neutrophils and are strongly inhibited by low concns. of diBA-(5)-C4.
IT **63560-89-4**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(chloride channels in regulatory volume decrease in promyelocytes and their inhibition by oxonol dye)
RN 63560-89-4 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[5-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2,4-pentadienylidene]- (9CI) (CA INDEX NAME)



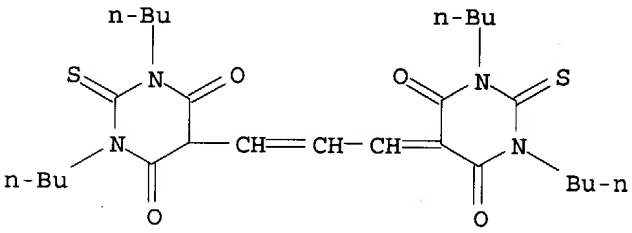
L53 ANSWER 36 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1995:827962 HCAPLUS
DN 123:250367
TI Voltage sensing by fluorescence resonance energy transfer in single cells
AU Gonzalez, Jesus E.; Tsien, Roger Y.
CS Howard Hughes Medical Institute, University California, San Diego, CA, 92093-0647, USA
SO Biophysical Journal (**1995**), 69(4), 1272-80
CODEN: BIOJAU; ISSN: 0006-3495
PB Biophysical Society
DT Journal
LA English
AB A new mechanism has been developed for achieving fast ratiometric voltage-sensitive fluorescence changes in single cells using fluorescence resonance energy transfer. The mechanism is based on hydrophobic fluorescent anions that rapidly redistribute from one face of the plasma membrane to the other according to the Nernst equation. A voltage-sensitive fluorescent readout is created by labeling the extracellular surface of the cell with a second fluorophore, here a fluorescently labeled lectin, that can undergo energy transfer with the membrane-bound sensor. Fluorescence resonance energy transfer between the two fluorophores is disrupted when the **membrane potential** is depolarized, because the anion is pulled to the intracellular surface of the plasma membrane far from the lectin. Bis-(1,3-dialkyl-2-thiobarbiturate)-trimethineoxonols, where alkyl is n-hexyl and n-decyl (DiSBA-C6-(3) and DiSBA-C10-(3), resp.) can function as donors to Texas Red labeled wheat germ agglutinin (TR-WGA) and acceptors from fluorescein-labeled lectin (FI-WGA). In voltage-clamped fibroblasts, the translocation of these oxonols is measured as a displacement current with a time constant of .apprx.2 ms for 100 mV depolarization at 20°, which equals the speed of the fluorescence changes. Fluorescence ratio changes of between 4% and 34% were observed for a 100-mV depolarization in fibroblasts, astrocytoma cells, beating cardiac myocytes, and B104 neuroblastoma cells. The large fluorescence changes allow high-speed confocal imaging.
IT **155703-07-4P 169211-43-2P 169211-44-3P 169211-45-4P**
RL: BUU (Biological use, unclassified); NUU (Other use, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); USES (Uses)
(voltage sensing by fluorescence resonance energy transfer in single cells)
RN 155703-07-4 HCAPLUS
CN 4,6(1H,5H)-Pyrimidinedione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]dihydro-2-thioxo- (9CI) (CA INDEX NAME)



RN 169211-43-2 HCAPLUS
CN 4,6(1H,5H)-Pyrimidinedione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]dihydro-2-thioxo-, compd. with pyridine (1:1) (9CI) (CA INDEX NAME)

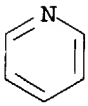
CM 1

CRN 155703-07-4
CMF C27 H40 N4 O4 S2

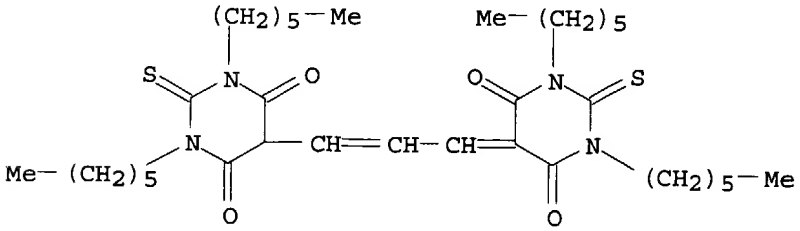


CM 2

CRN 110-86-1
CMF C5 H5 N

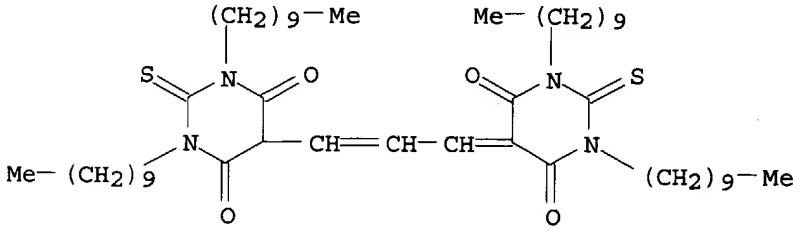


RN 169211-44-3 HCAPLUS
CN 4,6(1H,5H)-Pyrimidinedione, 5-[3-(1,3-dihexylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]-1,3-dihexyldihydro-2-thioxo- (9CI) (CA INDEX NAME)

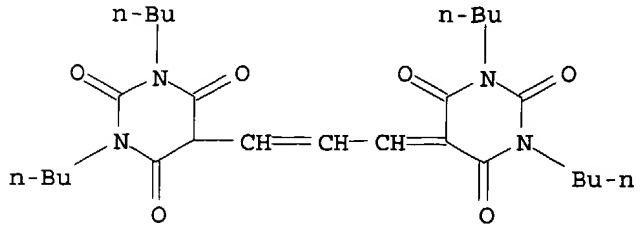


RN 169211-45-4 HCAPLUS
CN 4,6(1H,5H)-Pyrimidinedione, 1,3-didecyl-5-[3-(1,3-didecylhexahydro-4,6-

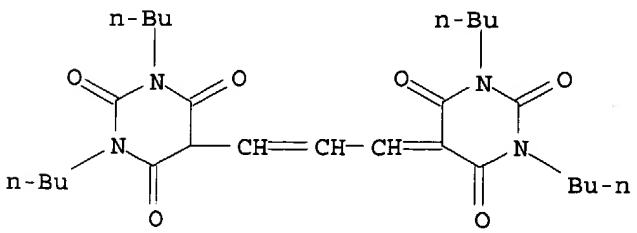
dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]dihydro-2-thioxo- (9CI) (CA INDEX NAME)



L53 ANSWER 37 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1995:665808 HCAPLUS
DN 123:78814
TI Development of a robust flow cytometric assay for determining numbers of viable bacteria
AU Jepras, R. I.; Carter, J.; Pearson, S. C.; Paul, F. E.; Wilkinson, M. J.
CS Analytical Sciences, SmithKline Beecham Pharmaceuticals, Betchworth, Surrey, RH3 7AJ, UK
SO Applied and Environmental Microbiology (**1995**), 61(7), 2696-701
CODEN: AEMIDF; ISSN: 0099-2240
PB American Society for Microbiology
DT Journal
LA English
AB Several fluorescent probes were evaluated as indicators of bacterial viability by flow cytometry. The probes monitor a number of biol. factors that are altered during loss of viability. The factors include alterations in membrane permeability, monitored by using fluorogenic substrates and fluorescent intercalating dyes such as propidium iodide, and changes in **membrane potential**, monitored by using fluorescent cationic and anionic potential-sensitive probes. Of the fluorescent reagents examined, the fluorescent anionic **membrane potential** probe bis-(1,3-dibutylbarbituric acid)trimethine oxonol [DiBAC4] proved the best candidate for use as a general robust viability marker and is a promising choice for use in high-throughput assays. With this probe, live and dead cells within a population can be identified and counted 10 min after sampling. There was a close correlation between viable counts determined by flow cytometry and by standard CFU assays for samples of untreated cells. The results indicate that flow cytometry is a sensitive anal. technique that can rapidly monitor physiol. changes of individual microorganisms as a result of external perturbations. The **membrane potential** probe DiBAC4(3) provided a robust flow cytometric indicator for bacterial cell viability.
IT **70363-83-6**
RL: ANT (Analyte); ANST (Analytical study)
(development of a robust flow cytometric assay for determining nos. of viable bacteria)
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)

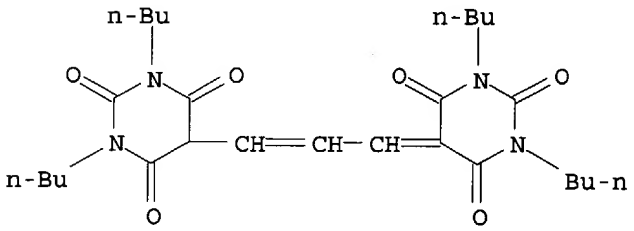


L53 ANSWER 38 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1995:555431 HCAPLUS
DN 123:28827
TI Flow cytometric determination of absolute **membrane potential** of cells
AU Krasznai, Zoltan; Marian, Terez; Balkay, Laszlo; Emri, Miklos; Tron, Lajos
CS Department of Biophysics, Debrecen, H-4012, Hung.
SO Journal of Photochemistry and Photobiology, B: Biology (**1995**), 28(1), 93-9
CODEN: JPPBEG; ISSN: 1011-1344
PB Elsevier
DT Journal
LA English
AB **Membrane potential** measurements using fluorescent **membrane potential** indicator dyes report on relative changes but usually do not result in an absolute value of the measured parameter. The method developed in this paper is based on the assumption that the neg. charged bis-oxonol distributes across the cytoplasmic membrane according to the Nernst equation. It is further supposed that the fluorescence intensity measured from a given stained cell is a single-value function of the intracellular dye concentration The protocol suggested incorporates the construction of a calibration curve (fluorescence intensity measured from stained cells vs. extracellular dye concentration). This allows the evaluation of the **membrane potential** in millivolts using fluorescence readings of the cells both in the depolarized state and in the state of interest. Good agreement was found between absolute **membrane potential** data of human peripheral blood lymphocytes by the method and results of parallel patch clamp measurements.
IT **70363-83-6**
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(flow cytometric determination of absolute **membrane potential** of cells)
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



L53 ANSWER 39 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1995:267674 HCAPLUS
DN 122:50595
TI Rapid estimation of bacterial antibiotic susceptibility with flow cytometry
AU Mason, D. J.; Allman, R.; Stark, J. M.; Lloyd, D.
CS Division of Microbiology, United Medical and Dental Schools, London, SE1 7EH, UK
SO Journal of Microscopy (Oxford, United Kingdom) (**1994**), 176(1), 8-16
CODEN: JMICAR; ISSN: 0022-2720
DT Journal
LA English
AB Bacterial antibiotic susceptibility was rapidly estimated for Escherichia coli and Staphylococcus spp. by flow cytometry. This was achieved by measuring the uptake of a neg. charged **membrane potential** sensitive dye bis-(1,3-dibutylbarbituric acid) trimethine oxonol and observing changes in low-angle light scatter (excitation light scattered by up to 15°). Estns. of ampicillin, gentamicin and ciprofloxacin susceptibilities were possible within 2-5 h from a plate culture, depending on the species and antibiotic used. This includes the time necessary to establish steady-state growth in liquid culture.
IT **70363-83-6**
RL: BPR (Biological process); BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); PROC (Process); USES (Uses)
(rapid estimation of bacterial antibiotic susceptibility with flow cytometry is based on the uptake of a **membrane potential** -sensitive dye)
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



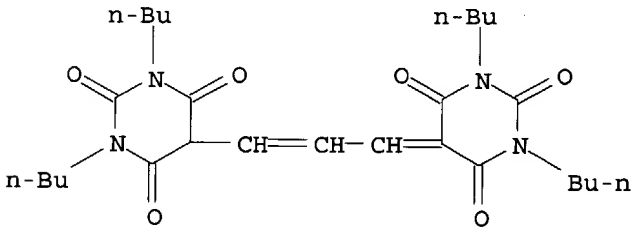
L53 ANSWER 40 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1994:239428 HCAPLUS
DN 120:239428
TI Characterization of the steady-state and dynamic fluorescence properties of the potential-sensitive dye bis-(1,3-dibutylbarbituric acid)trimethine oxonol (Dibac4(3)) in model systems and cells
AU Epps, Dennis E.; Wolfe, Mark L.; Groppi, Vince
CS Phys. Anal. Chem., Cell Biol., The Upjohn Co., Kalamazoo, MI, 49001-0199, USA
SO Chemistry and Physics of Lipids (**1994**), 69(2), 137-50
CODEN: CPLIA4; ISSN: 0009-3084
DT Journal
LA English
AB The steady-state and dynamic fluorescence properties of the **membrane potential**-sensitive bis-oxonol dye Dibac4(3) were characterized in vitro using model ligand systems and in vivo in A10 smooth muscle cells by fluorescence microscopy in conjunction with the ACAS imaging system. In the latter system the dye responds to potassium ion-induced jumps in **membrane potential** with changes

in its fluorescence intensity, which follow pseudo-first-order kinetics. The relationship between the magnitude of the changes and the corresponding rate consts. excludes the possibility that a simple, one-step equilibrium between exocellular and cytoplasmic dye would be sufficient to account for this phenomenon. The necessity of invoking an addnl. step suggested that the redistribution of the free dye between the cytoplasm and the exocellular medium is rapid and that the slow step associated with the fluorescence changes may be the interaction of the dye with proteins in the cytoplasm, along the lines proposed by T. Brauner et al. (1984). The interaction of the dye with BSA and with egg lecithin SUVs was studied as a model for the in vivo phenomenon. The dependence of fluorescence intensity changes on the concns. of the reagents shows the formation of a reversible dye/albumin complex with a 2/1-stoichiometry, with Kd = 0.03 ± 0.01 μM and a reversible adsorption to the SUVs with Kd 0.45 ± 0.08 μM. The fluorescence lifetime of the dye in solution, <100 ps, results in a high solution steady-state anisotropy. The latter decreases considerably upon binding to BSA, SUVs and A10 cells concomitant with a large increase in the lifetime. With such a short lifetime of the free dye, selective gating of the excitation source or the photodetector should eliminate the high background of the unbound dye and thereby enhance the sensitivity of the system.

IT **70363-83-6**
RL: PRP (Properties)
(fluorescence properties of)

RN 70363-83-6 HCAPLUS

CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



L53 ANSWER 41 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1992:587561 HCAPLUS

DN 117:187561

TI Method to improve the sensitivity of flow cytometric **membrane potential** measurements in mouse spinal cord cells

AU Seamer, Larry C.; Mandler, Raul N.

CS Sch. Med., Univ. New Mexico, Albuquerque, NM, 87131, USA

SO Cytometry (**1992**), 13(5), 545-52
CODEN: CYTODQ; ISSN: 0196-4763

DT Journal

LA English

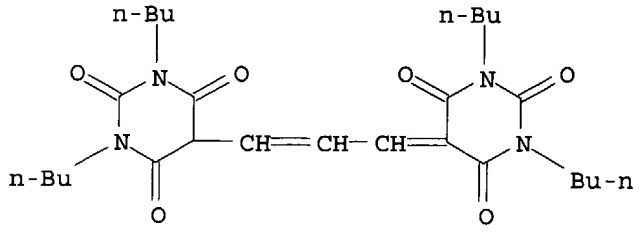
AB The authors have developed a technique to improve the sensitivity of relative **membrane potential** measurements in mouse spinal cord cells using the fluorescent, anionic, voltage sensitive dye, DiBa-C4(3) (Oxonol) and flow cytometry. In order to attribute cellular fluorescence primarily to **membrane potential**, signal variability due to cell size and shape was reduced by dividing the log fluorescence signal from each cell by either its log forward angle light scatter or log side scatter signals. The use of these ratios in place of log oxonol fluorescence reduced the coefficient of variation of the distributions while leaving the changes in mean fluorescence largely unaffected. Kolmogorov-Smirnov anal. of pre- vs. postkainate stimulation (an excitatory amino acid) showed improved sensitivity of the assay with

the use of this ratio technique.

IT **70363-83-6**
RL: ANST (Analytical study)
(in **membrane potential** determination in spinal cord cells)

RN 70363-83-6 HCAPLUS

CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



L53 ANSWER 42 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1992:190471 HCAPLUS

DN 116:190471

TI Behavior of potential-sensitive fluorescent probes in membrane and cell suspensions

AU Matylevich, N. P.; Ivkova, M. N.; Pechatnikov, V. A.; Ivkov, V. G.

CS Inst. Cell Biophys., Pushchino, USSR

SO Acta Pharmaceutica Jugoslavica (**1991**), 41(4), 379-89
CODEN: APJUA8; ISSN: 0001-6667

DT Journal

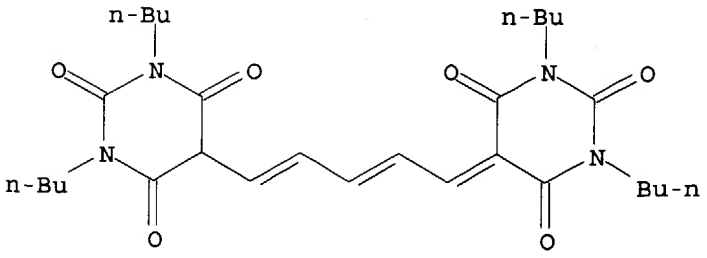
LA English

AB The potential-sensitive dyes diS-C3-(5) (3,3'-dipropylthiadicarbocyanine), diO-C6-(3) (3,3'-dihexyloxacarbocyanine), and the neg. charged diBa-C4(5) [bis-(1,3-dibutylbarbituric acid) pentamethine oxonol] were examined with respect to their binding to lymphocyte and model membranes and response to changes of potential. Comparative anal. was carried out for the probe partition constant between the aqueous and membrane phase, and spectral parameters in a suspension of egg lecithin vesicles. The adsorption of diS-C3-(5) to membranes has been studied as a function of the membrane lipid contents, surface charge, state of lipid phase, and ionic strength of media. More dye binds to neg. charged then neutral membranes; the partition constant decreased for cholesterol-containing membranes and membranes in gel-phase state. The paper presents expts. carried out to demonstrate how the potential-related fluorescent response depends on the exptl. design. The highest response of diS-C3(5) in a bulk membrane suspension was observed at micromolar concns. in a shorter wavelength region of fluorescence spectra, while a flow cytometric assay of lymphocytes was most effective at a lower dye content (10-9-10-8 mol L-1). These findings are discussed in terms of the thermodn. model described in V. G. Iukov et al. (1984).

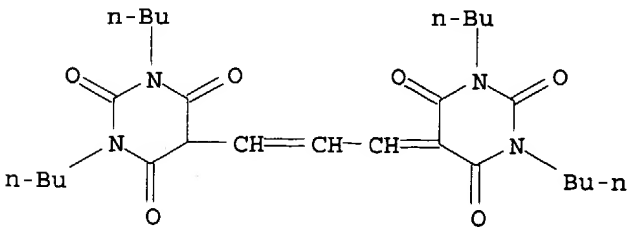
IT **63560-89-4**
RL: ANST (Analytical study)
(partitioning in membranes and cells of and elec. potential effect on fluorescent properties of)

RN 63560-89-4 HCAPLUS

CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[5-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2,4-pentadienylidene]- (9CI) (CA INDEX NAME)

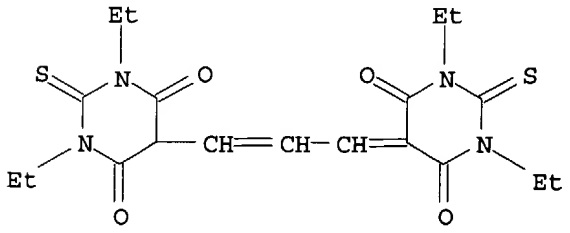


L53 ANSWER 43 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1992:147302 HCAPLUS
DN 116:147302
TI Macrophage **membrane potential** measurement with oxonol fluorescence probe.
AU Gamalei, I. A.; Kaulin, A. B.; Kirpichnikova, K. M.
CS Inst. Cytol., Leningrad, USSR
SO Tsitologiya (**1991**), 33(6), 60-6
CODEN: TSITAQ; ISSN: 0041-3771
DT Journal
LA Russian
AB Methodol. approaches related to the measuring of the **membrane potential** of macrophage with the probe bis-(1,3-dibutylbarbiturate)trimethineoxonol were examined At high concentration of the probe in the medium (900 μM), the fluorescent signal traces the membrane depolarization, whereas at a low concentration of the probe (110 nM) the hyperpolarization is more effectively detected. For understanding this difference in the measurements, the distribution of the dye between the cell and the medium and the kinetics of the probe efflux from the macrophage to the medium in the dye-free medium were examined The gradient concentration of the dye on the cell-medium boundary depended on I concentration in the medium. Using gramicidin D and Na- and Cl-free solns. the calibration of the fluorescent signal was done. The macrophage K+ equilibrium potential was -66--71 mV. The efflux of quinidine and binding of intracellular Ca caused substantial depolarization of the macrophage membrane. Evidently, the Ca2+-dependent K channels contribute to the maintenance of the macrophage resting potential.
IT **70363-83-6**
RL: ANST (Analytical study)
(fluorescent probe, for macrophage **membrane potential** measurement)
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



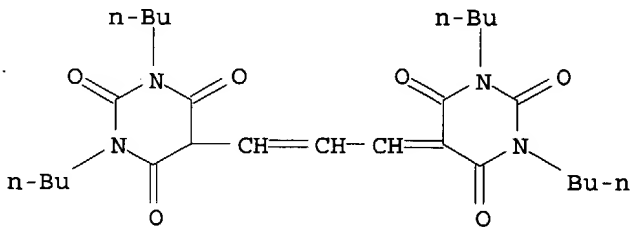
L53 ANSWER 44 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1991:597616 HCAPLUS
DN 115:197616
TI Characterization of multidrug resistance by fluorescent dyes
AU Kessel, David; Beck, William T.; Kukuruga, Debra; Schulz, Veronique
CS Dep. Pharmacol., Wayne State Univ., Detroit, MI, 48201, USA
SO Cancer Research (**1991**), 51(17), 4665-70
CODEN: CNREA8; ISSN: 0008-5472
DT Journal
LA English
AB Fluorimetric techniques were used to examine accumulation of fluorescent probes by the P388 murine leukemia and an anthracycline-resistant subline, P388/Adriamycin (ADR), which expresses the multidrug-resistant phenotype. P388 could be differentiated from P388/ADR on the basis of fluorescence intensity measurements using 3 classes of cationic dyes that are sensitive to **membrane potential** differences: rhodamine esters, cyanines, and styrylpyridinium dyes. But fluorescence intensity differences were also observed with potential-insensitive dyes: zwitterionic rhodamines and an acridine orange derivative In all cases, fluorescence intensity differences were caused by impaired dye accumulation, and could be eliminated by treatment of P388/ADR cells with verapamil. Moreover, fluorescence signals from 2 anionic potential-sensitive dyes, merocyanine 540 and a bis-oxonol, were identical in P388 and P388/ADR. None of these dyes could be used to delineate CCRF-CEM, and lymphoblastic leukemia of human origin from the CEM/VM-1 subline that exhibits a markedly atypical drug resistance pattern not based on an enhanced outward transport. But accumulation of both neutral and cationic dyes was impaired in CEM/VLB100, a subline of CCRF-CEM expressing mdr. These studies show that many cationic and neutral fluorescent probes are substrates for the enhanced outward drug transport system associated with P388/ADR cells, and cannot be used to probe **membrane-potential** differences in cells expressing the mdr phenotype. With several dyes, difference in fluorescence intensity were sufficient so that flow cytometry could be used to delineate P388 from P388/ADR and CCRF-CEM from CEM-VLB100. The latter technique may be useful for identifying malignant cell populations expressing multidrug resistance in patients with neoplastic disease.
IT **47623-98-3**
RL: BIOL (Biological study)
(neoplasm multidrug resistance characterization by, as fluorescent probe, in human and laboratory animal cells)
RN 47623-98-3 HCAPLUS
CN 4,6(1H,5H)-Pyrimidinedione, 5-[3-(1,3-diethylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]-1,3-diethyldihydro-2-thioxo- (9CI) (CA INDEX NAME)



L53 ANSWER 45 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1987:530271 HCAPLUS
DN 107:130271
TI **Membrane potential** and cation content of osteoblast-like cells (UMR 106) assessed by fluorescent dyes
AU Civitelli, Roberto; Reid, Ian R.; Halstead, Linda R.; Avioli, Louis V.; Hruska, Keith A.

CS Jew. Hosp. St. Louis, Washington Univ., St. Louis, MO, 63178, USA
SO Journal of Cellular Physiology (**1987**), 131(3), 434-41
CODEN: JCLLAX; ISSN: 0021-9541
DT Journal
LA English
AB To assess the electrophysiol. regulation of osteoblast function, a method for measuring the **membrane potential** (Em) of a rat osteogenic sarcoma cell line (UMR 106) by the voltage-sensitive oxonol dye bis-(1,3-dibutylbarbiturate) trimethyne oxonol (di-BA-C4(3)) was developed. The fluorescent signal of di-BA-C4(3) was calibrated through a null point method using the protonophore FCCP. At null point, Em is equivalent to H+ equilibrium potential, and may be calculated by the Nernst equation.
Intracellular pH (pHi) changes induced by the protonophore were monitored using bis-(carboxyethyl)carboxyfluoriscein (BCECF), a pH-sensitive fluorescent probe. In the presence of FCCP, intracellular pH was linearly correlated to extracellular pH. Therefore, the value of pHi at null point was extrapolated as well. The plasma **membrane potential** of the putative rat osteoblasts (UMR 106) as -28.3. This method corrected the 16% overestimation of Em derived from the assumption that pHi does not change during the calibration procedure, as described in previous studies employing pH null point techniques. With null point methods, using BCECF and the carboxylic ionophores nigericin and monensin, intracellular concns. of K and Na were also measured and found to be 125 and 24 mM, resp. Although the Em of UMR 106 cells was dependent on extracellular K concentration, these cells did not behave as a K electrode. The Na/K permeability ratio, calculated by the Goldman equation, was 0.317. This high membrane permeability to Na may contribute to the genesis of the low plasma **membrane potential** of UMR 106 cells.
IT **70363-83-6**
RL: ANST (Analytical study)
(in **membrane potential** determination in osteoblast-like cells)
RN 70363-83-6 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)



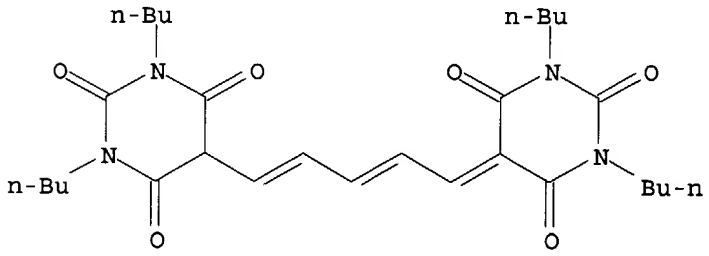
L53 ANSWER 46 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1986:458094 HCAPLUS
DN 105:58094
TI Oxonol dye diBa-C4-(5) as a fluorescent probe for **membrane potential** in chloroplasts and its interaction with valinomycin
AU Molotkovskii, Yu. G.; Yakovleva, G. A.
CS K. A. Timiryazev Inst. Plant Physiol., Moscow, 127276, USSR
SO Photosynthetica (**1985**), 19(4), 493-9
CODEN: PHSYB5; ISSN: 0300-3604
DT Journal
LA English
AB Quenching of fluorescence of diBa-C4-(5) [bis-[1,3-dibutylbarbituric acid-(5)]pentamethineoxonol] in a chloroplast suspension induced by light was inhibited by CCCP or DCMU, and slightly increased in the presence of

nigericin or NH4+. Light-induced responses of diBa-C4-(5) decreased and the ΔpH-sensitive 9-aminoacridine fluorescence increased when KCl was added to a suspension of chloroplasts in a deionized sucrose solution Thus, diBa-C4-(5) responded to the **membrane potential** in chloroplasts. In a K+-containing medium, the fluorescence of the dye decreased many fold after the addition of valinomycin. Interaction of the dye with the valinomycin-K+ complex determined the changes in the absorption and fluorescence excitation spectra.

IT **63560-89-4**
RL: BIOL (Biological study)
(chloroplast **membrane potential** determination by, interaction with valinomycin and)

RN 63560-89-4 HCAPLUS

CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[5-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2,4-pentadienylidene]- (9CI) (CA INDEX NAME)



L53 ANSWER 47 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1984:420120 HCAPLUS

DN 101:20120

TI Comparative measurements of **membrane potentials** with microelectrodes and voltage-sensitive dyes

AU Brauner, Thomas; Huelser, Dieter F.; Strasser, Reto J.

CS Biol. Inst., Univ. Stuttgart, Stuttgart, D-7000/60, Fed. Rep. Ger.

SO Biochimica et Biophysica Acta (**1984**), 771(2), 208-16
CODEN: BBACAQ; ISSN: 0006-3002

DT Journal

LA English

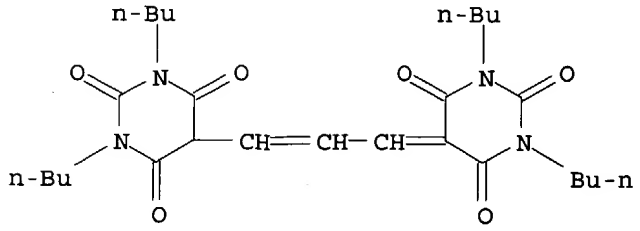
AB The usefulness of a new voltage-sensitive fluorescent dye, the membrane permeant neg. charged oxonol dye diBA-C4-(3)-, was evaluated by measuring the **membrane potentials** of BICR/M1R-k and L cells with glass microelectrodes and simultaneously recording the fluorescence of the stained cells. The **membrane potential** of BICR/M1R-k cells was varied between -25 and -90 mV by changing the bicarbonate concentration in the medium or by voltage clamping. To avoid any interference by the inserted electrodes with the fluorescence measurement of the cytoplasm, the cells were fused by PEG to form giant cells (homokaryons). These homokaryons also allowed penetration by 2 glass microelectrodes without causing a serious leakage of the plasma membrane. The slow responding dye diBA-C4-(3)- had a fluorescence response of .apprx.1%/mV. Math. anal. of the fluorescence changes after voltage clamping revealed a first-order reaction with a rate constant between 0.1 and 0.8 min-1, depending on the cell size which was determined by the number of nuclei/homokaryon. A model for the mechanism of the fluorescence changes is proposed.

IT **70363-83-6**
RL: ANST (Analytical study)
(as voltage-sensitive dye, for study of cell **membrane potentials**)

RN 70363-83-6 HCAPLUS

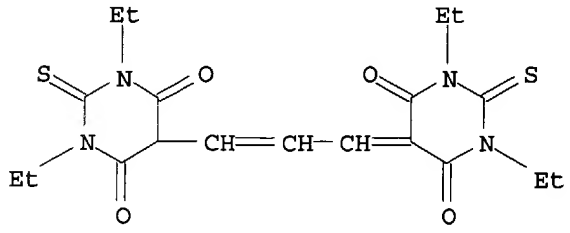
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[3-(1,3-dibutylhexahydro-

2,4,6-trioxo-5-pyrimidinyl)-2-propenylidene]- (9CI) (CA INDEX NAME)

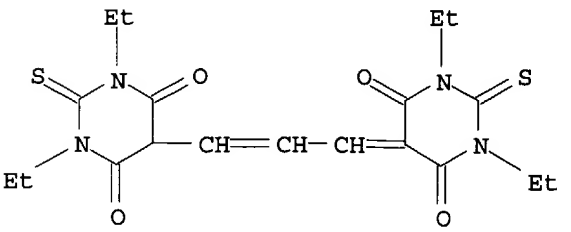


L53 ANSWER 48 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1980:91812 HCAPLUS
DN 92:91812
TI Lymphocyte **membrane potential** assessed with fluorescent probes
AU Rink, T. J.; Montecucco, C.; Hesketh, T. R.; Tsien, R. Y.
CS Physiol. Lab., Univ. Cambridge, Cambridge, CB2 3EG, UK
SO Biochimica et Biophysica Acta (**1980**), 595(1), 15-30
CODEN: BBACAQ; ISSN: 0006-3002
DT Journal
LA English
AB The **membrane potential** of mouse spleen lymphocytes was assessed with 2 fluorescent probes. 3,3'-Dipropylthiadicarbocyanine [diS-C6-(5)] (I) was used for most of the expts. Solns. with high K+ concns. depolarized the cells. Valinomycin, an ionophore which adds a highly K+-selective permeability to membranes, slightly hyperpolarized cells in standard (6 mM K+) solution and in 145 mM K+ solution produced a slight addnl. depolarization. These findings indicate a membrane whose permeability is relatively selective for K+. Very small changes in potential were seen when choline replaced Na+, or gluconate replaced Cl-, supporting the idea of K+ selectivity. The resting potential could be estimated from the K+ concentration gradient at which valinomycin did not change the potential and under the conditions used the resting potential was approx. -60 mV. The **membrane potential** of B-cells was similar to that estimated for the mixed cells. In solution with no added K+, I itself appeared to depolarize the lymphocytes, in a concentration dependent manner. With the 100 nM dye normally used, the **membrane potential** in K+-free solution was around -45 mV, and 500 nM dye almost completely depolarized the cells. Valinomycin could still depolarize these cells indicating that depolarization had not been due to dissipation of the K+ gradient. Since in K+-free solution I blocks the Ca2+-activated K+ channels in human red blood cell ghosts and quinine also blocks this K+ channel, it is suggested that the resting lymphocyte membrane may have a similar Ca2+-activated K+ permeability channel. Because of the above mentioned effect of I and other biol. side effects, such as inhibition of B-cell capping, a chemical distinct fluorescent probe of **membrane potential**, bis(1,3-diethylthiobarbiturate)-trimethine-oxonol was used to support the I data. This new probe was satisfactory except that it formed complexes with valinomycin, ruling out the use of this ionophore. Results with the oxonol on both mixed lymphocytes and B-cell-enriched suspensions gave confirmation of the conclusions from I expts. and indicated that despite its biol. side effects, I could still give valid assessment of **membrane potential**.
IT **47623-98-3**
RL: BIOL (Biological study)
(elec. potential of lymphocyte membrane determination by)

RN 47623-98-3 HCAPLUS
CN 4,6(1H,5H)-Pyrimidinedione, 5-[3-(1,3-diethylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]-1,3-diethyldihydro-2-thioxo- (9CI) (CA INDEX NAME)

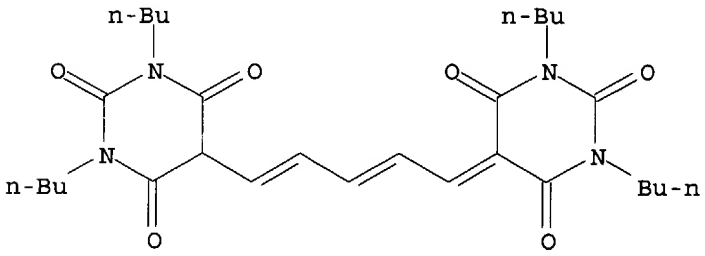


L53 ANSWER 49 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1979:400742 HCAPLUS
DN 91:742
TI Dicarbocyanine fluorescent probes of **membrane potential** block lymphocyte capping, deplete cellular ATP and inhibit respiration of isolated mitochondria
AU Montecucco, Cesare; Pozzan, Tullio; Rink, Timothy
CS Inst. Gen. Pathol., Univ. Padua, Padua, Italy
SO Biochimica et Biophysica Acta (**1979**), 552(3), 552-7
CODEN: BBACAQ; ISSN: 0006-3002
DT Journal
LA English
AB 3,3'-Dipropylthiodicarbocyanine iodide [53213-94-8], a widely used fluorescent probe of **membrane potential**, inhibited anti-Ig antibody-induced capping of mouse lymphocytes. The dye also lowered the cell ATP [56-65-5] content. In isolated mitochondria, the probe had a potent inhibitory action at site I of the respiratory chain. This mitochondrial blockade helps to explain the ATP depletion and blockade of capping, and gives cause for caution in the use of this dye as a probe of cell **membrane potential.** Three related dicarbocyanine dyes had similar toxic effects, but 2 cyanine dyes with much longer alkyl side chains, which have been used as probes of membrane fluidity, did not.
IT **47623-98-3**
RL: PRP (Properties)
(lymphocyte capping and mitochondrial respiration inhibition by)
RN 47623-98-3 HCAPLUS
CN 4,6(1H,5H)-Pyrimidinedione, 5-[3-(1,3-diethylhexahydro-4,6-dioxo-2-thioxo-5-pyrimidinyl)-2-propenylidene]-1,3-diethyldihydro-2-thioxo- (9CI) (CA INDEX NAME)



L53 ANSWER 50 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1978:559680 HCAPLUS
DN 89:159680

TI Use of dyes to estimate the electrical potential of the mitochondrial membrane
AU Walsh Kinnally, Kathleen; Tedeschi, Henry; Maloff, Bruce L.
CS Dep. Biol. Sci., State Univ. Albany, Albany, NY, USA
SO Biochemistry (**1978**), 17(16), 3419-28
CODEN: BICHAW; ISSN: 0006-2960
DT Journal
LA English
AB A number of cationic or anionic fluorescent dyes were investigated as possible monitors of the **membrane potential** of rat liver mitochondria and giant mitochondria isolated from the liver of mice maintained on a diet containing Cuprizone. The fluorescence of 4 dyes (8-anilino-1-naphthalenesulfonic acid, merocyanine 540, 3,3'-dipropylthiocarbocyanine, and bis[1,3-dibutylbarbituric acid-(5)]-pentamethineoxonol) responded appropriately to changes in an apparent K+ diffusion potential. Generally, valinomycin-induced K+ diffusion potentials as calculated using the Nernst equation were used to calibrate the dependence of the fluorescence on the **membrane potential**. The appropriateness of this approach was verified for 2 dyes using microelectrodes in giant mitochondria. The apparent **membrane potential** change induced by the addition of succinate was variable, but was very low and was generally <60 mV in magnitude. Apparently, a large **membrane potential** is not established upon the initiation of metabolism, and the **membrane potential** does not play a significant role in the observed ADP phosphorylation.
IT **63560-89-4**
RL: ANST (Analytical study)
(mitochondria **membrane potential** determination with)
RN 63560-89-4 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[5-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2,4-pentadienylidene]- (9CI) (CA INDEX NAME)



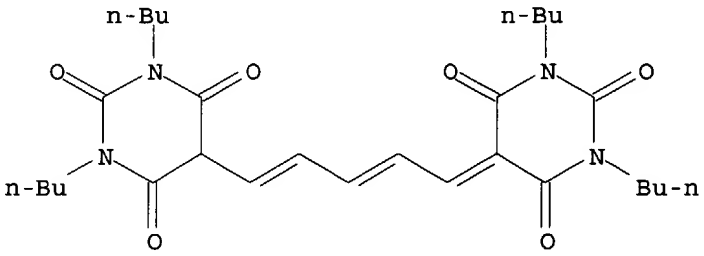
L53 ANSWER 51 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1978:557975 HCAPLUS
DN 89:157975
TI Metabolic effects of some electrofluorimetric dyes
AU Kinnally, Kathleen Walsh; Tedeschi, Henry
CS Dep. Biol. Sci., State Univ. New York, Albany, NY, USA
SO Biochimica et Biophysica Acta (**1978**), 503(2), 380-8
CODEN: BBACAQ; ISSN: 0006-3002
DT Journal
LA English
AB The effects of 5 electrofluorimetric dyes on mitochondrial metabolism were examined to determine their suitability for mitochondrial studies and other biol.
uses. The dyes merocyanine 540 [58823-12-4], 8-anilino-1-naphthalenesulfonic acid [82-76-8] and bis(1,3-di-Bu barbituric acid-(5)-pentamethine oxonol [**63560-89-4**] were inhibitors of the respiratory chain, but the 1st 2 exerted their effect only at high

concns. 3,3'-Dihexyl-2,2'-oxacarbocyanine [54501-79-0] was an uncoupler; 3,3'-dipropylthiocarbocyanine [54482-27-8] inhibited β-hydroxybutyrate respiration and dissociated succinate supported respiration from the phosphorylation of ADP. Thus, merocyanine 540 and 8-anilino-1-naphthalenesulfonic acid may be the best suited for studies of **membrane potentials** in mitochondria since their effect on metabolism is negligible.

IT **63560-89-4**
RL: PRP (Properties)
(mitochondria metabolism response to)

RN 63560-89-4 HCAPLUS

CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[5-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2,4-pentadienylidene]- (9CI) (CA INDEX NAME)



L53 ANSWER 52 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1977:450920 HCAPLUS

DN 87:50920

TI Changes in absorption, fluorescence, dichroism, and birefringence in stained giant axons: optical measurement of **membrane potential**

AU Ross, W. N.; Salzberg, B. M.; Cohen, L. B.; Grinvald, A.; Davila, H. V.; Waggoner, A. S.; Wang, C. H.

CS Sch. Med., Yale Univ., New Haven, CT, USA

SO Journal of Membrane Biology (**1977**), 33(1-2), 141-83
CODEN: JMBBBO; ISSN: 0022-2631

DT Journal

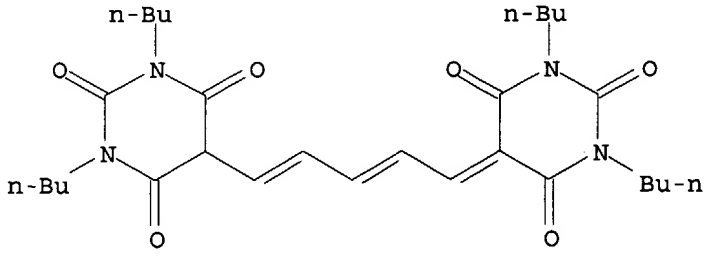
LA English

AB The absorption, fluorescence, dichroism, and birefringence of stained squid axons were measured during action potentials and voltage clamp steps to find large optical signals that could be used to monitor **membrane potential.** Changes in all 4 optical properties were found that were linearly related to **membrane potential.** Photodynamic damage was greatly diminished; with a merocyanine-rhodanine dye, the photodynamic damage associated with intense light and the presence of O was negligible. The absorption change obtained with this dye was relatively large.

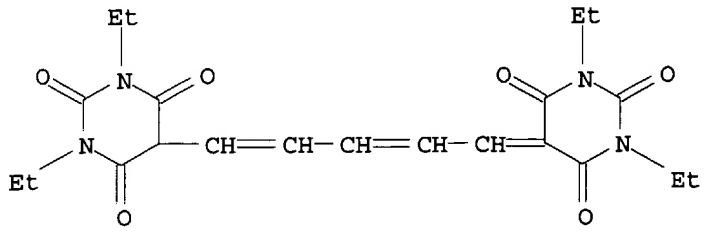
IT **63560-89-4**
RL: BIOL (Biological study)
(optical properties of nerve membrane in presence of)

RN 63560-89-4 HCAPLUS

CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[5-(1,3-dibutylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2,4-pentadienylidene]- (9CI) (CA INDEX NAME)



L53 ANSWER 53 OF 53 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1975:70988 HCAPLUS
DN 82:70988
TI Changes in axon fluorescence during activity. Molecular probes of **membrane potential**
AU Cohen, L. B.; Salzberg, B. M.; Davila, H. V.; Ross, W. N.; Landowne, D.; Waggoner, A. S.; Wang, C. H.
CS Sch. Med., Yale Univ., New Haven, CT, USA
SO Journal of Membrane Biology (**1974**), 19(1-2), 1-36
CODEN: JMBBBO; ISSN: 0022-2631
DT Journal
LA English
AB The fluorescence of dyes added to squid giant axons was studied during action potentials and voltage-clamp steps. Attempts were made to measure fluorescence changes using over 300 different fluorescent mols. and pos. results were obtained with >50% of these. No evidence was found that would relate any of the fluorescence changes to the increases in membrane conductance that accompany depolarization; most, instead, were correlated with the changes in **membrane potential.** The fluorescence changes of several dyes were relatively large; the largest changes during an action potential were 10-3 of the resting intensity. They could be measured with a signal-to-noise ratio of >10 in a single sweep.
IT **54444-01-8**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); DEV (Device component use); BIOL (Biological study); USES (Uses)
(as nerve **membrane potential** probe)
RN 54444-01-8 HCAPLUS
CN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 5-[5-(1,3-diethylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-2,4-pentadienylidene]-1,3-diethyl- (9CI) (CA INDEX NAME)



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